

## 1 Identification

### Product identifier

**Product name:** Cadmium nitrate tetrahydrate

**Stock number:** 10663

**CAS Number:**

10022-68-1

**EC number:**

233-710-6

**Index number:**

048-001-00-5

**Relevant identified uses of the substance or mixture and uses advised against.**

**Identified use:** SU24 Scientific research and development

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

#### Manufacturer/Supplier:

Alfa Aesar

Thermo Fisher Scientific Chemicals, Inc.

30 Bond Street

Ward Hill, MA 01835-8099

Tel: 800-343-0660

Fax: 800-322-4757

Email: tech@alfa.com

www.alfa.com

**Information Department:** Health, Safety and Environmental Department

#### Emergency telephone number:

During normal business hours (Monday-Friday, 8am-7pm EST), call (800) 343-0660. After normal business hours, call Carechem 24 at (866) 928-0789.

## 2 Hazard(s) identification

### Classification of the substance or mixture in accordance with 29 CFR 1910 (OSHA HCS)



GHS03 Flame over circle

Ox. Sol. 3 H272 May intensify fire; oxidizer.



GHS06 Skull and crossbones

Acute Tox. 3 H301 Toxic if swallowed.



GHS08 Health hazard

Carc. 1B H350 May cause cancer.



GHS07

Acute Tox. 4 H312 Harmful in contact with skin.

Acute Tox. 4 H332 Harmful if inhaled.

**Hazards not otherwise classified** No information known.

### Label elements

**GHS label elements** The product is classified and labeled in accordance with 29 CFR 1910 (OSHA HCS)

### Hazard pictograms



GHS03 GHS06 GHS08

### Signal word

**Danger**

### Hazard statements

H272 May intensify fire; oxidizer.

H301 Toxic if swallowed.

H312+H332 Harmful in contact with skin or if inhaled.

H350 May cause cancer.

### Precautionary statements

P221 Take any precaution to avoid mixing with combustibles.

P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.

P220 Keep/Store away from clothing/combustible materials.

P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor/...

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

### WHMIS classification

C - Oxidizing materials

D1B - Toxic material causing immediate and serious toxic effects

D2A - Very toxic material causing other toxic effects



### Classification system

**HMIS ratings (scale 0-4)**

**(Hazardous Materials Identification System)**

**HEALTH** 3 Health (acute effects) = 3

**FIRE** 2 Flammability = 2

**REACTIVITY** 2 Physical Hazard = 2

<b>Product name: Cadmium nitrate tetrahydrate</b>	
<b>Other hazards</b> <b>Results of PBT and vPvB assessment</b> <b>PBT:</b> Not applicable. <b>vPvB:</b> Not applicable.	(Contd. of page 1)
<b>3 Composition/information on ingredients</b> <b>Chemical characterization: Substances</b> <b>CAS# Description:</b> 10022-68-1 Cadmium nitrate tetrahydrate <b>Identification number(s):</b> <b>EC number:</b> 233-710-6 <b>Index number:</b> 048-001-00-5	
<b>4 First-aid measures</b> <b>Description of first aid measures</b> <b>After inhalation</b> Supply fresh air. If required, provide artificial respiration. Keep patient warm. Seek immediate medical advice. <b>After skin contact</b> Immediately wash with water and soap and rinse thoroughly. Seek immediate medical advice. <b>After eye contact</b> Rinse opened eye for several minutes under running water. Then consult a doctor. <b>After swallowing</b> Seek medical treatment. <b>Information for doctor</b> <b>Most important symptoms and effects, both acute and delayed</b> No further relevant information available. <b>Indication of any immediate medical attention and special treatment needed</b> No further relevant information available.	
<b>5 Fire-fighting measures</b> <b>Extinguishing media</b> <b>Suitable extinguishing agents</b> Carbon dioxide, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam. <b>For safety reasons unsuitable extinguishing agents</b> Halocarbon extinguisher <b>Special hazards arising from the substance or mixture</b> This substance is an oxidizer and its heat of reaction with reducing agents or combustibles may cause ignition. If this product is involved in a fire, the following can be released: Nitrogen oxides (NOx) Cadmium oxide <b>Advice for firefighters</b> <b>Protective equipment:</b> Wear self-contained respirator. Wear fully protective impervious suit.	
<b>6 Accidental release measures</b> <b>Personal precautions, protective equipment and emergency procedures</b> Wear protective equipment. Keep unprotected persons away. Ensure adequate ventilation <b>Environmental precautions:</b> Do not allow material to be released to the environment without proper governmental permits. <b>Methods and material for containment and cleaning up:</b> Dispose of contaminated material as waste according to section 13. Ensure adequate ventilation. <b>Prevention of secondary hazards:</b> Acts as an oxidizing agent on organic materials such as wood, paper and fats Keep away from combustible material. <b>Reference to other sections</b> See Section 7 for information on safe handling See Section 8 for information on personal protection equipment. See Section 13 for disposal information.	
<b>7 Handling and storage</b> <b>Handling</b> <b>Precautions for safe handling</b> Keep container tightly sealed. Store in cool, dry place in tightly closed containers. Ensure good ventilation at the workplace. <b>Information about protection against explosions and fires:</b> Substance/product can reduce the ignition temperature of flammable substances. This substance is an oxidizer and its heat of reaction with reducing agents or combustibles may cause ignition. <b>Conditions for safe storage, including any incompatibilities</b> <b>Storage</b> <b>Requirements to be met by storerooms and receptacles:</b> No special requirements. <b>Information about storage in one common storage facility:</b> Store away from flammable substances. Store away from reducing agents. Do not store with organic materials. Store away from metal powders. Store away from oxidizing agents. <b>Further information about storage conditions:</b> Keep container tightly sealed. Store in cool, dry conditions in well sealed containers. <b>Specific end use(s)</b> No further relevant information available.	
<b>8 Exposure controls/personal protection</b> <b>Additional information about design of technical systems:</b> Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.	(Contd. on page 3)

Product name: Cadmium nitrate tetrahydrate

(Contd. of page 2)

**Control parameters**  
**Components with limit values that require monitoring at the workplace:**  
**10022-68-1 Cadmium nitrate tetrahydrate (100.0%)**

PEL (USA)	Long-term value: 0.005 mg/m <sup>3</sup> as Cd; see 29 CFR 1910.1027
REL (USA)	See Pocket Guide App. A
TLV (USA)	Long-term value: 0.01 0.002* mg/m <sup>3</sup> as Cd; *respirable fraction; BEI
EL (Canada)	Long-term value: 0.01 mg/m <sup>3</sup> as Cd; ACIGH A1, IARC 1

**Additional information:** No data

**Exposure controls**  
**Personal protective equipment**  
**General protective and hygienic measures**  
The usual precautionary measures for handling chemicals should be followed.  
Keep away from foodstuffs, beverages and feed.  
Remove all soiled and contaminated clothing immediately.  
Wash hands before breaks and at the end of work.  
Avoid contact with the eyes and skin.  
Maintain an ergonomically appropriate working environment.  
**Breathing equipment:** Use suitable respirator when high concentrations are present.  
**Recommended filter device for short term use:**  
Use a respirator with type P100 (USA) or P3 (EN 143) cartridges as a backup to engineering controls. Risk assessment should be performed to determine if air-purifying respirators are appropriate. Only use equipment tested and approved under appropriate government standards.  
**Protection of hands:**  
Impervious gloves  
Check protective gloves prior to each use for their proper condition.  
The selection of suitable gloves not only depends on the material, but also on quality. Quality will vary from manufacturer to manufacturer.  
**Material of gloves** Nitrile rubber, NBR  
**Penetration time of glove material (in minutes)** 480  
**Glove thickness** 0.11 mm  
**Eye protection:** Safety glasses  
**Body protection:** Protective work clothing.

**9 Physical and chemical properties**

**Information on basic physical and chemical properties**  
**General Information**  
**Appearance:**  
**Form:** Crystalline  
**Color:** White  
**Odor:** Weak  
**Odor threshold:** Not determined.

**pH-value:** Not applicable.


**Change in condition**  
**Melting point/Melting range:** 59 °C (138 °F)  
**Boiling point/Boiling range:** 132 °C (270 °F)  
**Sublimation temperature / start:** Not determined  
**Flammability (solid, gaseous)** Contact with combustible material may cause fire.  
**Ignition temperature:** Not determined  
**Decomposition temperature:** Not determined  
**Auto igniting:** Not determined.

**Danger of explosion:** Not determined.

**Explosion limits:**  
**Lower:** Not determined  
**Upper:** Not determined  
**Vapor pressure:** Not applicable.  
**Density at 20 °C (68 °F):** 2.45 g/cm<sup>3</sup> (20.445 lbs/gal)  
**Relative density** Not determined.  
**Vapor density** Not applicable.  
**Evaporation rate** Not applicable.  
**Solubility in / Miscibility with**  
**Water:** 2150 g/l  
**Partition coefficient (n-octanol/water):** Not determined.  
**Viscosity:**  
**dynamic:** Not applicable.  
**kinematic:** Not applicable.  
**Other information** No further relevant information available.

**10 Stability and reactivity**

**Reactivity** May intensify fire; oxidizer.  
**Chemical stability** Stable under recommended storage conditions.  
**Thermal decomposition / conditions to be avoided:** Decomposition will not occur if used and stored according to specifications.  
**Possibility of hazardous reactions**  
Reacts with strong oxidizing agents  
Reacts with reducing agents  
Reacts with flammable substances  
**Conditions to avoid** No further relevant information available.  
**Incompatible materials:**  
Flammable substances  
Reducing agents  
Oxidizing agents  
Organic materials  
Metal powders  
**Hazardous decomposition products:**  
Nitrogen oxides  
Cadmium oxide

Product name: <b>Cadmium nitrate tetrahydrate</b>	
(Contd. of page 3)	
<b>11 Toxicological information</b>	
<b>Information on toxicological effects</b> <b>Acute toxicity:</b> Harmful if inhaled. Harmful in contact with skin. Toxic if swallowed. Danger through skin absorption. The Registry of Toxic Effects of Chemical Substances (RTECS) contains acute toxicity data for components in this product.	
<b>LD/LC50 values that are relevant for classification:</b> Oral LD50 300 mg/kg (rat)	
<b>Skin irritation or corrosion:</b> May cause irritation <b>Eye irritation or corrosion:</b> May cause irritation <b>Sensitization:</b> No sensitizing effects known. <b>Germ cell mutagenicity:</b> The Registry of Toxic Effects of Chemical Substances (RTECS) contains mutation data for this substance. <b>Carcinogenicity:</b> The following cancer warning/warnings refer to the anhydrous compound: IARC-1: Carcinogenic to humans: sufficient evidence of carcinogenicity. EPA-B1: Probable human carcinogen, limited evidence of carcinogenicity from epidemiologic studies. Carcinogen as defined by OSHA. ACGIH A2: Suspected human carcinogen: Agent is carcinogenic in experimental animals at dose levels, by route(s) of administration, at site(s), of histologic type(s), or by mechanism(s) considered relevant to worker exposure. Available epidemiologic studies are conflicting or insufficient to confirm an increased risk of cancer in exposed humans. NTP-K: Known to be carcinogenic: sufficient evidence from human studies. <b>Reproductive toxicity:</b> No effects known. <b>Specific target organ system toxicity - repeated exposure:</b> No effects known. <b>Specific target organ system toxicity - single exposure:</b> No effects known. <b>Aspiration hazard:</b> No effects known. <b>Subacute to chronic toxicity:</b> No effects known. <b>Additional toxicological information:</b> To the best of our knowledge the acute and chronic toxicity of this substance is not fully known. The following cancer warning/warnings refer to the anhydrous compound:	
<b>12 Ecological information</b>	
<b>Toxicity</b> <b>Aquatic toxicity:</b> No further relevant information available. <b>Persistence and degradability</b> No further relevant information available. <b>Bioaccumulative potential</b> No further relevant information available. <b>Mobility in soil</b> No further relevant information available. <b>Ecotoxical effects:</b> <b>Remark:</b> Very toxic for aquatic organisms <b>Additional ecological information:</b> <b>General notes:</b> Do not allow material to be released to the environment without proper governmental permits. Do not allow product to reach ground water, water course or sewage system, even in small quantities. Danger to drinking water if even extremely small quantities leak into the ground. Also poisonous for fish and plankton in water bodies. May cause long lasting harmful effects to aquatic life. Avoid transfer into the environment. Very toxic for aquatic organisms <b>Results of PBT and vPvB assessment</b> <b>PBT:</b> Not applicable. <b>vPvB:</b> Not applicable. <b>Other adverse effects</b> No further relevant information available.	
<b>13 Disposal considerations</b>	
<b>Waste treatment methods</b> <b>Recommendation</b> Consult state, local or national regulations to ensure proper disposal. <b>Uncleaned packagings:</b> <b>Recommendation:</b> Disposal must be made according to official regulations.	
<b>14 Transport information</b>	
<b>UN-Number</b> <b>DOT, IMDG, IATA</b>	UN3087
<b>UN proper shipping name</b> <b>DOT</b> <b>IMDG, IATA</b>	Oxidizing solid, toxic, n.o.s. (Cadmium nitrate tetrahydrate) OXIDIZING SOLID, TOXIC, N.O.S. (Cadmium nitrate tetrahydrate)
<b>Transport hazard class(es)</b> <b>DOT</b>   <b>Class</b> <b>Label</b> <b>Class</b> <b>Label</b> <b>IMDG, IATA</b>   <b>Class</b> <b>Label</b>	5.1 Oxidising substances. 5.1+6.1 5.1 (OT2) Oxidizing substances 5.1+6.1    5.1 Oxidising substances. 5.1+6.1
<b>Packing group</b> <b>DOT, IMDG, IATA</b>	II
<b>Environmental hazards:</b>	Environmentally hazardous substance, solid
(Contd. on page 5) USA	

Product name: <b>Cadmium nitrate tetrahydrate</b>	
(Contd. of page 4)	
Special precautions for user EMS Number:	Warning: Oxidizing substances F-A,S-Q
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable.	
Transport/Additional information:	
DOT Marine Pollutant (DOT):	No
UN "Model Regulation":	UN3087, Oxidizing solid, toxic, n.o.s. (Cadmium nitrate tetrahydrate), 5.1 (6.1), II

15 Regulatory information

**Safety, health and environmental regulations/legislation specific for the substance or mixture**  
**GHS label elements** The product is classified and labeled in accordance with 29 CFR 1910 (OSHA HCS)  
**Hazard pictograms**



GHS03 GHS06 GHS08

**Signal word** Danger  
**Hazard statements**

H272 May intensify fire; oxidizer.  
H301 Toxic if swallowed.  
H312+H332 Harmful in contact with skin or if inhaled.  
H350 May cause cancer.

**Precautionary statements**

P221 Take any precaution to avoid mixing with combustibles.  
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.  
P220 Keep/Store away from clothing/combustible materials.  
P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor/...  
P405 Store locked up.  
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

**National regulations**

All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.  
All components of this product are listed on the Canadian Domestic Substances List (DSL).

**SARA Section 313 (specific toxic chemical listings)**

10022-68-1 Cadmium nitrate tetrahydrate

**California Proposition 65**

**Prop 65 - Chemicals known to cause cancer**

10022-68-1 Cadmium nitrate tetrahydrate

**Prop 65 - Developmental toxicity** Substance is not listed.

**Prop 65 - Developmental toxicity, female** Substance is not listed.

**Prop 65 - Developmental toxicity, male** Substance is not listed.

**Information about limitation of use:** For use only by technically qualified individuals.

**Other regulations, limitations and prohibitive regulations**

**Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006.** Substance is not listed.

**The conditions of restrictions according to Article 67 and Annex XVII of the Regulation (EC) No 1907/2006 (REACH) for the manufacturing, placing on the market and use must be observed.**

Substance is not listed.

**Annex XIV of the REACH Regulations (requiring Authorisation for use)** Substance is not listed.

**Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

**Department issuing SDS:** Global Marketing Department

**Date of preparation / last revision** 11/24/2015 / -

**Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

HMIS: Hazardous Materials Identification System (USA)

WHMIS: Workplace Hazardous Materials Information System (Canada)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

vPvB: very Persistent and very Bioaccumulative

ACGIH: American Conference of Governmental Industrial Hygienists (USA)

OSHA: Occupational Safety and Health Administration (USA)

NTP: National Toxicology Program (USA)

IARC: International Agency for Research on Cancer

EPA: Environmental Protection Agency (USA)