

Classified as hazardous in accordance with the criteria of EPA New Zealand

Section 1 - Identification

Product Identifier

Product Name <u>Cadmium nitrate tetrahydrate</u>

CAS No 10022-68-1

Synonyms Nitric acid, cadmium salt, tetrahydrate.

Molecular Formula Cd N2 O6 . 4 H2 O

Molecular Weight 308.46

Recommended Use Laboratory chemicals.
Uses advised against No Information available

Product Code C13-100; C13-500

Address Thermo Fisher Scientific New Zealand Ltd

244 Bush Road, Albany, Auckland, New Zealand

Emergency Tel. CHEMTREC®

09 980 6780 or +64 9 980 6780

Telephone / Fax Numbers Tel: 09 980 6700

Fax: 09 980 6788

E-mail address ANZinfo@thermofisher.com

Section 2 - Hazard(s) Identification

Classification under Work Safe New Zealand

Classified as hazardous in accordance with the criteria of EPA New Zealand

HSNO Approval Number HSR002503

GHS Classification

Physical hazards

Based on available data, the classification criteria are not met

Health hazards

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

Environmental hazards

FSHC13 Version 2 10-Mar-2023 Page 1/11

Acute aquatic toxicity Chronic aquatic toxicity Category 1
Category 1

Label Elements



Signal Word

Danger

Hazard Statements

H301 - Toxic if swallowed

H312 - Harmful in contact with skin

H330 - Fatal if inhaled

H340 - May cause genetic defects

H350 - May cause cancer

H360 - May damage fertility or the unborn child

H372 - Causes damage to organs through prolonged or repeated exposure

H410 - Very toxic to aquatic life with long lasting effects

Precautionary Statements

Prevention

P201 - Obtain special instructions before use

P202 - Do not handle until all safety precautions have been read and understood

P260 - Do not breathe dust/fume/gas/mist/vapors/spray

P264 - Wash face, hands and any exposed skin thoroughly after handling

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

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

P284 - Wear respiratory protection

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

P273 - Avoid release to the environment

Response

P302 + P352 - IF ON SKIN: Wash with plenty of soap and water

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

P310 - Immediately call a POISON CENTER or doctor

P330 - Rinse mouth

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

P391 - Collect spillage

Storage

P403 + P233 - Store in a well-ventilated place. Keep container tightly closed

P405 - Store locked up

Disposal

P501 - Dispose of contents/ container to an approved waste disposal plant

Other hazards which do not result in classification

Toxic to terrestrial vertebrates

Section 3 - Composition and Information on Ingredients

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

FSHC13 Version 2 10-Mar-2023 Page 2/11

Section 4 - First Aid Measures

Description of first aid measures

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

required.

New Zealand Emergency Tel. CHEMTREC®

09 980 6780 or +64 9 980 6780

Inhalation Remove 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.

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.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Immediate medical

attention is required.

Ingestion Do NOT induce vomiting. Call a physician or poison control center immediately.

Self-Protection of the First Aider Ensure that medical personnel are aware of the material(s) involved, take precautions to

protect themselves and prevent spread of contamination.

First Aid Facilities Eyewash, safety shower and washroom.

Most important symptoms and

effects

None reasonably foreseeable.

Notes to Physician Treat symptomatically.

Section 5 - Fire Fighting Measures

Suitable Extinguishing Media

Water spray. Carbon dioxide (CO₂). Dry chemical. Chemical foam.

Extinguishing media which must not be used for safety reasons

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 (NOx).

Special protective equipment and precautions for fire fighters

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.

Section 6 - Accidental Release Measures

Personal Precautions, Protective Equipment and Emergency Procedures

Emergency procedures

Ensure adequate ventilation. Use personal protective equipment as required. Avoid dust formation. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas.

FSHC13 Version 2 10-Mar-2023 Page 3 / 11

Environmental Precautions

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.

Methods for Containment and Clean Up

Sweep up and shovel into suitable containers 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.

Precautions to prevent secondary hazards

Clean contaminated objects and areas thoroughly observing environmental regulations

Reference to Other Sections

Refer to protective measures listed in Sections 8 and 13.

Section 7 - Handling and Storage

Precautions for Safe Handling

Advice on safe handling

Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Avoid dust formation. Use only under a chemical fume hood. Do not breathe (dust, vapor, mist, gas). Do not ingest. If swallowed then seek immediate medical assistance. Keep away from clothing and other combustible materials.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash hands before breaks and after work.

Conditions for Safe Storage, Including any Incompatibilities

Storage Conditions

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.

Incompatible Materials

Organic materials. Metals. copper. Reducing Agent. Strong reducing agents. Combustible material.

AS/NZS 2243.10:2004, Safety in laboratories - Storage of chemicals

Section 8 - Exposure Controls and Personal Protection

Control parameters

Exposure limits

ACGIH - Threshold Limit Values - Ceiling (TLV-C) guidelines by the American Conference of Governmental Industrial Hygienists (ACGIH) for controlling worker exposure to airborne chemical concentrations in the workplace.

UK - EH40/2005 Work Exposure Limits, Fourth edition. Published 2020.

AUS - Exposure Standards for Atmospheric Contaminants in the Occupational Environment - Guidance Note on the Interpretation of Exposure Standards for Atmospheric Contaminants in the Occupational Environment [NOHSC:3008(1995)] Adopted National Exposure Standards for Atmospheric Contaminants in the Occupational Environment [NOHSC:1003(1995)] updated in August, 2005. Safe Work Australia

Component	New Zealand WEL	Australia	ACGIH TLV	The United Kingdom
Cadmium nitrate		TWA: 0.01 mg/m ³	TWA: 0.01 mg/m ³	STEL: 0.075 mg/m ³ 15 min
tetrahydrate		_	TWA: 0.002 mg/m ³	TWA: 0.025 mg/m ³ 8 hr
Cadmium nitrate		TWA: 0.01 mg/m ³	TWA: 0.01 mg/m ³	STEL: 0.075 mg/m ³ 15 min
			TWA: 0.002 mg/m ³	TWA: 0.025 mg/m ³ 8 hr

Biological limit values

ACGIH - American Conference of Governmental Industrial Hygienists (ACGIH) TLVs® and BEIs®- Threshold Limit Values for Chemical Substances and Physical Agents & Biological Exposure Indices. 2022 Edition

FSHC13 Version 2 10-Mar-2023 Page 4/11

Component	New Zealand	Australia	ACGIH - Biological Exposure Indices	United Kingdom
Cadmium nitrate tetrahydrate			5 µg/g creatinine Medium: urine Time: not critical Determinant: Cadmium 5 µg/L Medium: blood Time: not critical Determinant: Cadmium	
Cadmium nitrate				

Appropriate engineering controls

Engineering Measures

Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location. Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

Individual protection measures, such as personal protective equipment

Eye Protection Goggles (Australian/New Zealand Standard AS/NZS 1337 - Eye protectors for Industrial

applications)

Hand Protection Protective gloves

Glove material	Breakthrough time	Glove thickness	AUS/NZ Standard	Glove comments
Natural rubber, Nitrile	See manufacturers	-	AS/NZS 2161	(minimum requirement)
rubber, Neoprene, PVC.	recommendations			

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

Skin and body protection Long sleeved clothing

Repiratory Protection Use an AS/NZS 1716 approved respirator if exposure limits are exceeded or if irritation or

other symptoms are experienced. To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained in line with AS/NZS 1715 on the use

and maintenance of repiratory protective devices

Recommended Filter type: Particulates filter conforming to EN 143 (or AUS/NZ equivalent)

Recommended half mask:- Particle filtering: EN149:2001 (or AUS/NZ equivalent)

When RPE is used a face piece Fit Test should be conducted

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

Environmental exposure controls Prevent product from entering drains. Do not allow material to contaminate ground water

system. Local authorities should be advised if significant spillages cannot be contained.

Section 9 - Physical and Chemical Properties

Information on basic physical and chemical properties

FSHC13 Version 2 10-Mar-2023 Page 5/11

Physical State Solid

Appearance White Odor Odorless

Odor Threshold No data available

pH 3.9 50% aq. solution

Melting Point/Range 59 °C / 138.2 °F

Softening Point No data available

Boiling Point/Range 132 °C / 269.6 °F @ 760 mmHg **Flammability (liquid)** Not applicable Solid

Flammability (liquid)

Flammability (solid,gas)

Not applicable

No information available

Explosion Limits No data available

Flash Point No information available Method - No information available

Solid

Solid

Autoignition Temperature No data available

Decomposition Temperature No data available

Viscosity
Not applicable
2150 g/L (20°C)

Solubility in other solvents No information available

Partition Coefficient (n-octanol/water)

Vapor Pressure
Density / Specific Gravity
Bulk Density
Vapor Density
No data available
No data available
No data available
Not applicable

Particle characteristics No data available

Other information

Molecular Formula Cd N2 O6 . 4 H2 O

Molecular Weight 308.46 Oxidizing Properties Oxidizer

Evaporation Rate Not applicable - Solid

Section 10 - Stability and Reactivity

Reactivity Yes

Stability Hygroscopic.

Sensitivity to Mechanical Impact No information available

Sensitivity to Static Discharge No information available

Hazardous PolymerizationNo information available.

Hazardous Reactions None under normal processing.

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

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

material.

Hazardous Decomposition Products Nitrogen oxides (NOx).

Section 11 - Toxicological Information

Acute Effects

Information on likely routes of exposure

Product Information

FSHC13 Version 2 10-Mar-2023 Page 6/11

Inhalation Not an expected route of exposure.

Eyes Avoid contact with eyes.

Skin Avoid contact with skin. Harmful in contact with skin.

Ingestion May be harmful if swallowed.

Numerical measures of toxicity

(a) acute toxicity;

OralCategory 3DermalCategory 4InhalationCategory 2

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Cadmium nitrate tetrahydrate	LD50 = 300 mg/kg (Rat)		
Cadmium nitrate	LD50 = 300 mg/kg (Rat)		

(b) skin corrosion/irritation; No data available

(c) serious eye damage/irritation; No data available

(d) respiratory or skin sensitization;

Respiratory No data available Skin No data available

(e) germ cell mutagenicity; Category 1B

Ames test:; positive

(f) carcinogenicity; Category 1B

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

Component	New Zealand	Australia	New South Wales	Western Australia	IARC	EU	UK	Germany
Cadmium nitrate					Group 1	Carc Cat. 1B		

(g) reproductive toxicity; Category 1B

(h) STOT-single exposure; No data available

(i) STOT-repeated exposure; Category 1

Target Organs Kidney, Bone.

(j) aspiration hazard; Not applicable

Solid

Other Adverse Effects The toxicological properties have not been fully investigated.

Symptoms / effects,both acute and delayed

No information available.

Section 12 - Ecological Information

FSHC13 Version 2 10-Mar-2023 Page 7/11

Ecotoxicity

Aquatic 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 Fish	Water Flea	Freshwater Algae	Microtox
Cadmium nitrate tetrahydrate				EC50 = 1.62 mg/L 30
				min

Terrestrial ecotoxicity There is no data for this product

Persistence and Degradability

Persistence Soluble in water, Persistence is unlikely, based on information available.

Degradability

Degradation in sewage treatment

plant

Not relevant for inorganic substances.

Contains substances known to be hazardous to the environment or not degradable in waste

water treatment plants.

Bioaccumulative Potential Bioaccumulation is unlikely

MobilityThe product is water soluble, and may spread in water systems. Will likely be mobile in the

environment due to its water solubility. Highly mobile in soils

Other adverse effects

Endocrine Disruptor Information Persistent Organic Pollutant Ozone Depletion Potential This product does not contain any known or suspected endocrine disruptors

This product does not contain any known or suspected substance This product does not contain any known or suspected substance

Section 13 - Disposal Considerations

Waste treatment methods

Waste from Residues/Unused

Products

Do not allow into drains or watercourses or dispose of where ground or surface waters may be affected. Wastes, including emptied containers, are controlled wastes and should be disposed of in accordance with all federal, E.P.A., state and local regulations. Assure

conformity with all applicable regulations.

Contaminated Packaging Dispose of this container to hazardous or special waste collection point.

Other Information Disposal agencies or waste contractors must comply with the New Zealand Hazardous

Substances (Disposal) Regulations. Do not flush to sewer. Waste codes should be assigned by the user based on the application for which the product was used. Do not

empty into drains. Do not let this chemical enter the environment.

Section 14 - Transport Information

NZS 5433:2020

UN-No UN2570

Proper Shipping Name CADMIUM COMPOUND Cadmium nitrate

FSHC13 Version 2 10-Mar-2023 Page 8/11

Hazard Class 6.1 **Packing Group** Ш

IATA

UN-No UN2570

CADMIUM COMPOUND Proper Shipping Name

Cadmium nitrate **Technical Shipping Name**

Hazard Class 6.1 **Packing Group**

IMDG/IMO

UN2570 **UN-No**

Proper Shipping Name CADMIUM COMPOUND

Technical Shipping Name Cadmium nitrate

Hazard Class 6.1 **Packing Group**

Environmental hazards Dangerous for the environment

Product is a marine pollutant according to the criteria set by IMDG/IMO

Transport in bulk according to Annex II of MARPOL 73/78 and the

IBC Code

Not applicable, packaged goods

No special precautions required. Please refer to the applicable dangerous goods **Special Precautions**

regulations for additional information.

Additional information None known

Section 15 - Regulatory Information

Safety, health and environmental regulations/legislation specific for the substance or mixture

HSNO Approval Number HSR002503

National Regulations

There are no applicable tolerable exposure limits or environmental exposure limits according to the EPA Controls for Hazardous Substances

Certified handlers, tracking and controlled substance license requirements

Certified handlers are required for some substances. This includes substances requiring a controlled substance license, and most explosives, vertebrates toxic agents, and certain fumigants. Acutely toxic substances which are a Category 1 or 2, such as pesticides also require Certified handlers. Please check the Health and Safety at Work Act 2015 for further information. Tracking is required for some highly hazardous substances. These substances need to be under the control of an appropriately trained person or appropriately secured. Please check the Health and Safety at Work Act 2015 for further information.

Prohibition or notification/licensing requirements

Shown below are details of specific prohibition/notifications or licencing requirements when they apply.

International Regulations

This product does not contain any known or suspected substance **Ozone Depletion Potential**

This product does not contain any known or suspected substance **Persistent Organic Pollutant**

Rotterdam Convention (PIC) Not applicable

FSHC13 Version 2 10-Mar-2023 Page 9/11

Authorisation/Restrictions according to EU REACH

Component	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Cadmium nitrate tetrahydrate	-	Use restricted. See item 23. (see link for restriction details) Use restricted. See item 75. (see link for restriction details)	SVHC Candidate list - 233-710-6 - Carcinogenic, Article 57a;Mutagenic, Article 57b;Specific target organ toxicity after repeated exposure, Article 57(f) - human health
Cadmium nitrate	-	Use restricted. See item 72. (see link for restriction details) Use restricted. See item 28. (see link for restriction details) Use restricted. See item 29. (see link for restriction details) Use restricted. See item 75. (see link for restriction details) Use restricted. See item 23. (see link for restriction details)	SVHC Candidate list Carcinogenic, Article 57a;Mutagenic, Article 57b;Specific target organ toxicity after repeated exposure, Article 57(f) - human health

After the sunset date the use of this substance requires either an authorization or can only be used for exempted uses, e.g. use in scientific research and development which includes routine analytics or use as intermediate.

https://echa.europa.eu/authorisation-list

https://echa.europa.eu/substances-restricted-under-reach

https://echa.europa.eu/candidate-list-table

International Inventories

New Zealand (NZIoC), Australia (AICS), Europe (EINECS/ELINCS/NLP), Korea (KECL), China (IECSC), Taiwan (TCSI), Japan (ISHL), Canada (DSL/NDSL), Philippines (PICCS). US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

Component	CAS No	NZIoC	AICS	EINECS	ELINCS	NLP	KECL	IECSC	TCSI
Cadmium nitrate tetrahydrate	10022-68-1	Х	Х	-	-	-	-	X	X
Cadmium nitrate	10325-94-7	Х	Х	233-710-6	-	-	KE-04416	X	Х

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	DSL	NDSL	PICCS	ISHL	ENCS
Cadmium nitrate tetrahydrate	10022-68-1	-	-	-	-	X	Х	Х
Cadmium nitrate	10325-94-7	Х	ACTIVE	X	-	X	Х	Х

Legend: X - Listed '-' - Not Listed KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

Section 16 - Other Information

This safety data sheet complies with the requirements of the EPA Hazardous Substances (Hazard Classification) Notice 2020 and WorkSafe New Zealand Regulations

Legend

NZIoC - New Zealand Inventory of Chemicals

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

IECSC - Chinese Inventory of Existing Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

TWA - Time Weighted Average

IARC - International Agency for Research on Cancer NZS 5433:2020 - Transport of Dangerous Goods on Land

ICAO/IATA - International Civil Aviation Organization/International Air

AICS - Australian Inventory of Chemical Substances

EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

ENCS - Japanese Existing and New Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

CAS - Chemical Abstracts Service

ACGIH - American Conference of Governmental Industrial Hygienists

PNEC - Predicted No Effect Concentration

OECD - Organisation for Economic Co-operation and Development

FSHC13 Version 2 10-Mar-2023 Page 10 / 11

Transport Association IMO/IMDG - International Maritime Organization/International Maritime
Dangerous Goods Code

MARPOL - International Convention for the Prevention of Pollution from

Ships

LD50 - Lethal Dose 50%

EC50 - Effective Concentration 50%
WEL - Workplace Exposure Limit
DNEL - Derived No Effect Level
POW - Partition coefficient Octanol:Water

vPvB - very Persistent, very Bioaccumulative

VOC - (Volatile Organic Compound)

LC50 - Lethal Concentration 50% **ATE** - Acute Toxicity Estimate

RPE - Respiratory Protective Equipment NOEC - No Observed Effect Concentration

BCF - Bioconcentration factor

PBT - Persistent, Bioaccumulative, Toxic

Key literature references and sources for data

HSNO classifications provided in the New Zealand Chemical Classification Information Database (CCID). https://echa.europa.eu/information-on-chemicals
Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS
EPA Guide to classifying hazardous substances in New Zealand
EPA - Assigning a product to an existing HSNO approval guide

Training Advice

Chemical incident response training.

Revision Date 10-Mar-2023 Revision Summary Not applicable

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 Safety Data Sheet

FSHC13 Version 2 10-Mar-2023 Page 11 / 11