

Safety Data Sheet

1. Chemical product and company identification

Product name : Calcium nitrate tetrahydrate

Company information

Name of manufacturer : KANTO CHEMICAL CO., INC.
 Address : 2-1, Nihonbashi, Muromachi 2-Chome, Chuo-Ku, Tokyo, 103-0022, JP
 Name of section : Business Administration Department, Reagent Division
 Telephone number : +81-3-6214-1090
 Facsimile number : +81-3-3241-1047
 Mail address : BC32@kanto.co.jp
 Reference No : 07082
 Recommended use : For research use only
 Restrictions on use : Seek expert judgment when using the product for applications other than those recommended.

2. Hazards identification

GHS classification

Physical hazards	Oxidizing solids	Category 3
Health hazards	Specific target organ toxicity (single exposure)	Category 1 (blood)
	Specific target organ toxicity (repeated exposure)	Category 1 (blood)

Hazard pictograms



Signal word : Danger

Hazard statements : May intensify fire; oxidizer
 Causes damage to organs (blood)
 Causes damage to organs (blood) through prolonged or repeated exposure

Precautionary statements

Prevention : Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
 Keep away from clothing and other combustible materials.
 Do not breathe dust.
 Wash hands, forearms and face thoroughly after handling.
 Do not eat, drink or smoke when using this product.
 Wear protective gloves/protective clothing/eye protection/face protection.

Response : IF exposed or concerned: Call a POISON CENTER or doctor.
 Get medical advice/attention if you feel unwell.

Storage : Store locked up.

Disposal : Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

3. Composition/information on ingredients

Distinctio n of substance or mixture : Substance

Chemical name	Concentration (%)	Formula	TSCA	EC-No.	CAS RN
Calcium nitrate tetrahydrate	≥ 98.5	CaN206. 4H2O	Not listed	-	13477-34-4

4. First aid measures

First aid measures

First-aid measures after inhalation : Remove the victim to fresh air, and make him blow his nose and gargle.

First-aid measures after skin contact : Wash the affected areas under running water.

First-aid measures after eye contact : Gently rinse the affected eyes with clean water for at least 15 minutes.

First-aid measures after ingestion : Give the victim water or salt water and induce vomiting. If necessary, get medical attention.

Personal Protection in First Aid and Measures : Rescuers should wear proper protective equipment like rubber gloves, goggles.

5. Fire fighting measures

Suitable extinguishing media : This product is noncombustible.

Unsuitable extinguishing media : None

Fire hazard : Contact with combustible material may cause fire.

Firefighting instructions : Move containers from fire area if it can be done without risk, if not possible, apply water from a safe distance to cool and protect surrounding area.

Personal protection (Emergency response) : Firefighters should wear protective equipment.

6. Accidental release measures

Personal Precautions, Protective Equipment and Emergency Procedures

General measures : Wear proper protective equipment and avoid contact with skin and inhalation of dust. Conduct operations from upwind and evacuate people downwind.

Environmental precautions

Environmental precautions : Attention should be given to avoid discharge of spilled product into rivers and resulting environmental damage. When diluting spill with large amounts of water, discharge of untreated wastewater into the environment must be avoided.

Methods and Equipment for Containment and Cleaning up

For containment : Sweep up in a chemical waste container. Flush contaminated area with copious amounts of water.

Prevention Measures for Secondary Accidents : Do not allow contact with organic substances or combustible substances.

7. Handling and storage

Handling

Technical measures : If necessary, wear proper protective equipment to avoid contact with skin or inhalation of dust.

Precautions for safe handling : Avoid formation of dust and aerosols. The substance is an oxidizer. Avoid contact with organic substances.

Storage

Storage conditions : As the chemical is deliquescent, keep the bottle tightly closed and store in a cool place (below 30° C). Keep away from combustible materials.

Material used in packaging/containers : Glass, polyethylene, polypropylene.

8. Exposure controls / Personal protection equipment

ACGIH TWA	Not established
Appropriate engineering controls	: Install a local ventilation system in case of dusty condition.
Protective equipment	
Respiratory protection	: If necessary, wear dust mask
Hand protection	: Impervious protective gloves
Eye protection	: Safety goggles
Skin and body protection	: Protective clothing, protective boots

9. Physical and chemical properties

Physical state : Solid

Color : White

Odor : Odorless

pH : 4.0 - 6.0 (50 g/L, 25°C)

Melting point : 42.7 ° C

Freezing point : No data available

Boiling point : No data available

Flash point : No data available

Auto-ignition temperature : No data available

Decomposition temperature : 100 ° C (Lose water of crystallization)

Flammability : Non flammable.

Vapor pressure : No data available

Relative density : No data available

Density : 1.82 g/cm³

Relative gas density : No data available

Solubility : Water: 102 g/100mL (0°C) (as anhydride).
Organic solvent: Easily soluble in methanol, ethanol and acetone

Partition coefficient n-octanol/water (log Pow)	(as anhydride).
Explosive limits (vol %)	: No data available
Viscosity, kinematic	: No data available
Particle characteristics	: No data available

10. Stability and reactivity

Reactivity	: Has strong oxidizing properties. May react with combustible materials or reducing substances.
Chemical stability	: Stable under normal conditions. Deliquescent.
Possibility of hazardous reactions	: Contact with combustible materials or reducing substances may ignite or explode.
Conditions to avoid	: Light, heat, moisture.
Incompatible materials	: Combustible materials, Reducing substances.
Hazardous decomposition products	: Nitrogen oxides.

11. Toxicological information

Acute toxicity (oral)	: No classification rat LD50=9285 mg/kg (as anhydrous)
Acute toxicity (dermal)	: Classification not possible
Acute toxicity (inhalation)	: No classification (gas) Classification not possible (vapor) Classification not possible (dust, mist)
Skin corrosion/irritation	: Classification not possible As anhydrous, there was report that six male farmers revealed corrosive wound after contact with fertilizer (calcium nitrate), but there was no information on composition and concentration of the fertilizer or exposure time was provided and also there was no test data of animals, so it was classified as "Classification not possible" due to insufficient data available.
Serious eye damage/irritation	: Classification not possible
Respiratory sensitization	: Classification not possible
Skin sensitization	: Classification not possible
Germ cell mutagenicity	: Classification not possible As anhydrous, a negative DNA damage-repair test with <i>E. coli</i> (in vitro mutagenicity test) has been reported, however the classification is not possible due to lack of in vivo test data.

Carcinogenicity	<ul style="list-style-type: none"> : Classification not possible <p>The classification was not possible due to no data available. As relevant information, the IARC described that the evidence of carcinogenicity in humans for nitrates in drinking water was uncertain. And also, it was evaluated the carcinogenicity as "Group 2A" under the conditions that nitrates or nitrites could be nitrosated in vivo after oral ingestion. The comprehensive evaluation of the IARC described additionally as follows: There is an active endogenous nitrogen cycle in humans that involves nitrates and nitrites, which are interconvertible in vivo. Nitrosating agents that arise from nitrites under acidic gastric conditions react readily with compounds which are easily nitrosated, especially secondary amines and amides, to generate N-nitroso compounds. These nitrosating conditions are enhanced following ingestion of additional nitrates, nitrites or nitroso compounds. Some of the N-nitroso compounds have the possibility to form known carcinogens in humans under these conditions.</p>
Reproductive toxicity	<ul style="list-style-type: none"> : Classification not possible
STOT-single exposure	<ul style="list-style-type: none"> : Causes damage to organs (blood) <p>There were no reports on human health for the substance concerned. With regard to information for general water-soluble nitrates, it was reported that 15 soldiers who ingested sodium nitrate by mistake instead of table salts became methemoglobinemia. Of them, 13 ingested about 1g died, while two ingested 5g survived. Based on the information, the substance was classified as category 1 (blood).</p>
STOT-repeated exposure	<ul style="list-style-type: none"> : Causes damage to organs (blood) through prolonged or repeated exposure <p>With regard to chronic toxicity of general water-soluble nitrates, there were numerous reports of increased methemoglobin concentrations observed in the infants who ingested meal or water containing nitrates, and case reports of methemoglobinemia observed in the patients administered sodium nitrate or ammonium nitrate as a diuretic agent or in the patients treated with ammonium nitrate as an urolithiasis-preventive agent were presented. Based on the information, the substance was classified as category 1 (blood).</p>
Aspiration hazard	<ul style="list-style-type: none"> : Classification not possible

12. Ecological information

Ecotoxicity

Aquatic acute	<ul style="list-style-type: none"> : No classification
Aquatic chronic	<ul style="list-style-type: none"> : Lepomis macrochirus LC50=2400 mg/L/96h (as anhydrous)

Persistence and degradability

No additional information available

Bioaccumulative potential

No additional information available

Mobility in soil

No additional information available

Hazardous to the ozone layer

Ozone	<ul style="list-style-type: none"> : Classification not possible
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13. Disposal considerations

Ecological waste information : Dilute with copious water and adjust the pH to neutral, then flush in drains. Insoluble substances are buried in a landfill site approved for the disposal of chemical and hazardous wastes. Or entrust approved waste disposal companies with the disposal.

Contaminated container and packaging : In case of disposal of empty bottles, dispose bottles after removing the content thoroughly.

14. Transport information

International Regulations

Transport by sea (IMDG)

UN-No. (IMDG) : 1454
Proper Shipping Name (IMDG) : CALCIUM NITRATE
Packing group (IMDG) : III
Transport hazard class(es) (IMDG) : 5.1

Air transport (IATA)

UN-No. (IATA) : 1454
Proper Shipping Name (IATA) : Calcium nitrate
Packing group (IATA) : III
Transport hazard class(es) (IATA) : 5.1

Marine pollutant : Not applicable
MFAG-No : 140

15. Regulatory information

Regulatory information with regard to this substance in your country or region should be examined by your own responsibility.

16. Other information

Data sources : NITE Chemical Risk Information Platform (NITE-CH RIP), National Institute of Technology and Evaluation.
Encyclopaedia Chimica, Kyoritsu Shuppan Co, Ltd. (1963) .
ICSC Card (2009) .

The information contained herein is based on several references and the present state of our knowledge. However the SDS does not always cover all information about the product, handle the product carefully. The information is intended to ordinary usage, in case of particular handlings, conduct appropriate safety measurements. The information herein is only provision of information, and it does not represent a guarantee the properties of the product. The Safety Data Sheet (SDS) is prepared based on JIS Z7253.