Issue date: 7/29/2003
Revision date: 2/20/2024

Safety Data Sheet

1. Chemical product and company identification

Product name : Potassium nitrate

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	:	32365
Product numbers applied by the SDS	:	32111, 32365, 32387
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	Reproductive toxicity	Category 2
	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
Suspected of damaging fertility or the unborn child
Causes damage to organs (blood)
Causes damage to organs (blood) through prolonged or repeated exposure

Precautionary statements

Prevention : Do not handle until all safety precautions have been read and understood.
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. IF exposed or concerned: Get medical advice/attention. 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

Distinction of substance or mixture : Substance

Chemical name	Concentration (%)	Formula	TSCA	EC-No.	CAS RN
Potassium nitrate	≥ 98	KNO3	Listed	231-818-8	7757-79-1

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	:	Wash the affected areas under running water.
First-aid measures after ingestion	:	Give the victim water immediately. Call a physician immediately.
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 damage to the environment by flowing of spillage to rivers.

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	:	Wear appropriate 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 oxdizer. Avoid contact with organic substances.

Storage

Storage conditions	:	Store in a dark, cool place and tightly closed. Keep away from combustible matrials.
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	:	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	:	Colorless - white
Odor	:	Odorless
pH	:	5.0 - 8.0 (50 g/L, 25℃)
Melting point	:	333 - 334 ° C
Freezing point	:	No data available
Boiling point	:	No data available
Flash point	:	No data available
Auto-ignition temperature	:	No data available
Decomposition temperature	:	400 ° C
Flammability	:	Non flammable.
Vapor pressure	:	No data available
Relative density	:	No data available
Density	:	2.1 g/cm^3
Relative gas density	:	No data available

Solubility	:	Water: 35.7 g/100 mL (25℃) Organic solvent: Insoluble in ether. Ethanol(0.1 g/100 mL, 30℃).
Partition coefficient n-octanol/water (log Pow)	:	No data available
Explosive limits (vol %)	:	No data available
Viscosity, kinematic	:	No data available
Particle characteristics	:	No data available

10. Stability and reactivity

Reactivity	:	Has oxidative properties.
Chemical stability	:	When heated above its melting point, it releases oxygen to produce potassium nitrite.
Possibility of hazardous reactions	:	May ignite or explode when in contact with flammable or reducing substances.
Conditions to avoid	:	Light, heat.
Incompatible materials	:	Combustible materials, reducing substances.
Hazardous decomposition products	:	Nitrogen oxides.

11. Toxicological information

Acute toxicity (oral)	:	No classification rat LD50=3750 mg/kg
Acute toxicity (dermal)	:	No classification rat LD50>5000 mg/kg
Acute toxicity (inhalation)	:	No classification (gas) Classification not possible (vapor) Classification not possible (dust, mist)
Skin corrosion/irritation	:	No classification Skin irritation test (based on OECD TG404) using rabbits showed no irritation. Therefore, it was classified as "No classification".
Serious eye damage/irritation	:	No classification Eye irritation test (based on OECD TG405) using rabbits showed no irritation. Therefore, it was classified as "No classification".
Respiratory sensitization	:	Classification not possible
Skin sensitization	:	No classification No sensitization was observed in a skin sensitization test using mice (based on OECD TG429). Therefore, it was classified as "No classification".
Germ cell mutagenicity	:	Classification not possible The classification was not possible due to lack of in vivo test data. As relevant information, as for in vitro mutagenicity studies, negative results in the Ames test and gene mutation test using mammalian cultured cells were reported.

Carcinogenicity	:	Classification not possible 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.
Reproductive toxicity	:	Suspected of damaging fertility or the unborn child In the oral administration study in guinea pigs via drinking water, although there was no description about the general toxicity to parent animals, increased abortions, and fetal deaths were observed (EHC 5, IUCLID, HSDB). And in the two-generation reproductive study by feeding administration in rats, malformations were observed (IUCLID, HSDB). Therefore, the substance was classified as category 2.
STOT-single exposure	:	Causes damage to organs (blood) 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 15g died, while two ingested 5 g survived. Based on the information, the substance was classified as category 1 (blood).
STOT-repeated exposure	:	Causes damage to organs (blood) through prolonged or repeated exposure 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).
Aspiration hazard	:	Classification not possible

12. Ecological information

Ecotoxicity

Aquatic acute	:	No classification Daphnia magna LC50=490 mg/L/48h
Aquatic chronic	:	No classification

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	:	Classification not possible

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)	:	1486
Proper Shipping Name (IMDG)	:	POTASSIUM NITRATE
Packing group (IMDG)	:	III
Transport hazard class(es) (IMDG)	:	5.1

Air transport(IATA)

UN-No. (IATA)	:	1486
Proper Shipping Name (IATA)	:	Potassium 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	:	ICSC Card (2009) . Encyclopaedia Chimica, Kyoritsu Shuppan Co, Ltd. (1963) . NITE Chemical Risk Information Platform (NITE-CHRIP), National Institute of Technology and Evaluation. Handbook of 17322 Chemical Products, The Chemical Daily Co. (2022) .

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.