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Safety Data Sheet

1. Chemical product and company identification

Product name : Aluminium nitrate nonahydrate

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	:	01170
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	Serious eye damage/eye irritation	Category 2A

Hazard pictograms



Signal word : Warning

Hazard statements : May intensify fire; oxidizer
Causes serious eye irritation

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. Wash hands, forearms and face thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection.
Response	:	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
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
Aluminium nitrate nonahydrate	≥ 98	AlN3O9·9H2O	Listed	236-751-8	7784-27-2

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 for at least 15 minutes. If necessary, get medical treatment.

First-aid measures after ingestion : Give the victim water or salt water and make him vomit. 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 : Wear proper protective equipment to avoid contact with skin or inhalation of dust. Do not mix with combustible substances like

organic compounds, sulfur, phosphorous.

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 : 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 : 2 - 4 (50g/L, 25℃)

Melting point : 73 ° C

Freezing point : No data available

Boiling point : No data available

Flash point : No data available

Auto-ignition temperature : No data available

Decomposition temperature : 135 ° C

Flammability : Non flammable.

Vapor pressure : No data available

Relative density : No data available

Density : No data available

Relative gas density : No data available

Solubility : Water: Readily soluble. Organic solvents: Easily soluble in ethanol.

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	:	Stable under normal conditions. Deliquescent.
Possibility of hazardous reactions	:	The mixture with powdery combustible materials may burn vigorously or explode by heating or shock.
Conditions to avoid	:	Light, heat, moisture.
Incompatible materials	:	Alkaline substances, combustible materials, reducing substances.
Hazardous decomposition products	:	Nitrogen oxides.

11. Toxicological information

Acute toxicity (oral)	:	No classification rat LD50=3671mg/kg
Acute toxicity (dermal)	:	Classification not possible
Acute toxicity (inhalation)	:	No classification (gas) No classification (vapor) Classification not possible (dust, mist)
Skin corrosion/irritation	:	No classification In three different test procedures, aluminium nitrate caused at most temporary mild irritation on rabbit skin. Based on these findings aluminium nitrate was assessed as a mild skin irritant.
Serious eye damage/irritation	:	Causes serious eye irritation In rabbit eyes, aluminium nitrate caused severe injuries of the eyes, which even after 21 days had not yet healed and were assessed as irreversible (detailed information was not provided). Temporary irritant effects still occurred even if the eye was rinsed as early as 30 seconds or four seconds after the instillation of aluminium nitrate. Due to the mentioned findings, aluminium nitrate was assessed as a severe eye-irritant. However, since the detailed conditions are unknown, it was classified into category 2A.
Respiratory sensitization	:	Classification not possible
Skin sensitization	:	Classification not possible
Germ cell mutagenicity	:	Classification not possible
Carcinogenicity	:	Classification not possible Besides, IARC overall evaluated the carcinogenicity of ingested nitrate or nitrite under conditions that result in endogenous nitrosation in group 2A. In the IARC evaluation, it was described that "There is an active endogenous nitrogen cycle in humans that involves nitrate and nitrite, which are interconvertible in vivo. Nitrosating agents that arise from nitrite under acidic gastric conditions react readily with nitrosatable compounds, especially secondary amines and amides, to generate N-nitroso compounds. These nitrosating conditions are enhanced following ingestion of additional nitrate, nitrite or nitrosatable compounds. Some of the N-nitroso compounds that could be formed in humans under these conditions are known carcinogens." It is described in IARC that there is inadequate evidence in humans for the carcinogenicity of nitrate in food and that of nitrate in drinking water.

Reproductive toxicity	:	Classification not possible In a study on the developmental toxicity, pregnant rats were administered 0, 180, 360 or 720 mg aluminium nitrate nonahydrate per kg of body weight per day via gavage from days 6 to 14. Maternal-toxic effects (reduced weight gain) occurred in all groups treated with alminium nitrate nonahydrate. No embryolethal effects were observed, but foetotoxic effects occurred. Moreover, all doses had adverse effects on the skeletal development, and the highest dose also caused organ malformations (haematomas, kidney hypoplasia, dextrocardia). The LOAEL for maternal-toxic and developmental-toxic effects was 102 mg alminium nitrate nonahydrate per kg of body weight per day. There is no information on the effects on reproductive function.
STOT-single exposure	:	Classification not possible There is no information about this substance. In general, the symptoms of acute oral toxicity with aluminium ions are assumed to include nausea, vomiting, severe abdominal pain and diarrhoea. In addition, high oral nitrate ion doses cause gastrointestinal disorders, dizziness, reduced heart rate, hypotension, initially skin reddening, followed by cyanosis with grey-brown skin and blue mucosae, possibly seizures, loss of consciousness and death due to circulatory collapse.
STOT-repeated exposure	:	Classification not possible
Aspiration hazard	:	Classification not possible

12. Ecological information

Ecotoxicity

Aquatic acute	:	Classification not possible
Aquatic chronic	:	Classification not possible

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	:	Dissolve in water and add calcium hydroxide or sodium carbonate solution to precipitate. Filter the precipitation and bury in a landfill site approved for hazardous waste disposal. Flush the supernatant in a drain after adjusting the pH to neutral. Or entrust approved waste disposal companies with the disposal. <Note> *The pH of the neutralization should be above 8.5. The precipitation does not form completely below pH 8.5.

14. Transport information

International Regulations

Transport by sea(IMDG)

UN-No. (IMDG)	:	1438
Proper Shipping Name (IMDG)	:	ALUMINIUM NITRATE
Packing group (IMDG)	:	III
Transport hazard class(es) (IMDG)	:	5.1

Air transport(IATA)

UN-No. (IATA)	:	1438
Proper Shipping Name (IATA)	:	Aluminium 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 : Encyclopaedia Chimica, Kyoritsu Shuppan Co, Ltd. (1963) .
Dangerous Properties of Industrial Materials,6th ed.
N.I.Sax Van Nostrand Reinhold Company (1984) .
NITE Chemical Risk Information Platform (NITE-CHRIP), National Institute of Technology and Evaluation.

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.