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Safety Data Sheet

1. Chemical product and company identification

Product name : Aluminium trifluoride

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	:	01160
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

Health hazards	Acute toxicity (oral)	Category 3
	Serious eye damage/eye irritation	Category 2A
	Reproductive toxicity	Category 2
	Specific target organ toxicity (single exposure)	Category 3 (respiratory tract irritation.)
	Specific target organ toxicity (repeated exposure)	Category 1 (bone)

Hazard pictograms





Signal word : Danger

Hazard statements :
Toxic if swallowed
Causes serious eye irritation
May cause respiratory irritation
Suspected of damaging fertility or the unborn child
Causes damage to organs (bone) through prolonged or repeated exposure

Precautionary statements

Prevention :
Do not handle until all safety precautions have been read and understood.
Do not breathe dust.
Wash hands, forearms and face thoroughly after handling.
Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/protective clothing/eye protection/face protection.

Response	:	IF SWALLOWED: Immediately call a POISON CENTER or doctor. IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF exposed or concerned: Get medical advice/attention. Call a POISON CENTER or doctor if you feel unwell. Get medical advice/attention if you feel unwell. Rinse mouth. If eye irritation persists: Get medical advice/attention.
Storage	:	Store in a well-ventilated place. Keep container tightly closed. 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
Synonyms	:	Aluminium fluoride

Chemical name	Concentration (%)	Formula	TSCA	EC-No.	CAS RN
Aluminium trifluoride	> 98	AlF3	Listed	232-051-1	7784-18-1

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 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
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.

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.

Storage

Storage conditions : Store in a dark, cool place and tightly closed.

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

8. Exposure controls / Personal protection equipment

ACGIH TWA	2.5 mg/m³ (as F)

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 : No data available

Melting point : No data available

Freezing point : No data available

Boiling point : No data available

Flash point : No data available

Auto-ignition temperature : No data available

Decomposition temperature : No data available

Flammability : Not flammable.

Vapor pressure	:	21.9 hPa (1098℃)
Relative density	:	2.882 (25/4℃)
Density	:	No data available
Relative gas density	:	No data available
Solubility	:	Water: 0.56 % (25℃)
Partition coefficient n-octanol/water (log Pow)	:	No data available
Explosive limits (vol %)	:	No data available
Viscosity, kinematic	:	No data available
Sublimation point	:	1272 ° C
Particle characteristics	:	No data available

10. Stability and reactivity

Reactivity	:	Prolonged melting with sodium carbonate or calcium oxide produces aluminate.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	Stable under normal conditions of use.
Conditions to avoid	:	Light, heat.
Incompatible materials	:	Oxidizing substances.
Hazardous decomposition products	:	Fluorine, hydrogen fluoride.

11. Toxicological information

Acute toxicity (oral)	:	Toxic if swallowed mouse LD50=103mg/kg
Acute toxicity (dermal)	:	Classification not possible
Acute toxicity (inhalation)	:	No classification (gas) No classification (vapor) Classification not possible (dust, mist)
Skin corrosion/irritation	:	Classification not possible May cause skin irritation.
Serious eye damage/irritation	:	Causes serious eye irritation Because it is written that this substance is severely irritating to eyes and severely irritating to tissues, it was classified into category 2A.
Respiratory sensitization	:	Classification not possible Besides, asthmatic signs by irritant particles were reported in the occupational exposure of handling this substance and aluminum sulfate.
Skin sensitization	:	Classification not possible
Germ cell mutagenicity	:	Classification not possible There are no in vivo data, and as for in vitro, a bacterial reverse mutation test was negative.
Carcinogenicity	:	Classification not possible Besides, ACGIH classified aluminum metal and its insoluble compound, and fluorides in A4 respectively.

Reproductive toxicity	:	Suspected of damaging fertility or the unborn child It is reported that in a teratogenicity test in pregnant rats in inhalation exposure to this substance through a gestation period, increased pre-implantation mortality of fertilized ova at 0.03-0.2 mg/m3 and fetal toxicity and teratogenicity at a higher concentration occurred, but there is no information on maternal toxicity. It is difficult to confirm the details of the original literature written in Russian, but by considering that the report suggests serious reproductive toxicity effects such as embryonic death and malformation from an extremely low concentration, the substance was classified into category 2 only from this one report in this hazard class.
STOT-single exposure	:	May cause respiratory irritation From the data that this substance is irritating to the respiratory tract and causes nasal bleeding and vomiting, it was classified into category 3 (respiratory tract irritation).
STOT-repeated exposure	:	Causes damage to organs (bone) through prolonged or repeated exposure There are no data on this substance. This substance is used as an additive in aluminum refining. In an epidemiological survey of workers exposed to fluorides in aluminum refining, the majority of 107 employees exposed to relatively high concentrations (2.4-6.0 mg/m3) developed fluorosis after 10-year exposure and showed moderate to severe osteosclerosis with the limitation of dorsal spine mobility after 15 years. Moreover, it is reported that workers in occupational exposure to fluorides did not show bone lesions at an average concentration of 2.65 mg/m3, but developed bone changes at an average concentration of 3.38 mg/m3. Therefore, it was classified into category 1 (bone).
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	:	Disposal should be made by one of following methods. Or entrust approved waste disposal companies with the disposal. Solidification method : Solidify with cement and bury in a landfill site approved for

hazardous waste disposal.

Roasting method :
In case of a large amount of the chemical, recover metal aluminium by roast reduction method.

<Note>
＊In case of disposal by roasting method, it is desirable to entrust to disposal companies.

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)	:	3288
Proper Shipping Name (IMDG)	:	TOXIC SOLID, INORGANIC, N.O.S.
Packing group (IMDG)	:	III
Transport hazard class(es) (IMDG)	:	6.1

Air transport(IATA)

UN-No. (IATA)	:	3288
Proper Shipping Name (IATA)	:	Toxic solid, inorganic, n.o.s.
Packing group (IATA)	:	III
Transport hazard class(es) (IATA)	:	6.1
Marine pollutant	:	Not applicable
MFAG-No	:	151

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) .
Handbook of Poisonous and Deleterious substances, revised and enlarged edition, Yakumu Kohosa (2000) .
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.