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Safety Data Sheet

1. Chemical product and company identification

Product name : Ammonium fluoride

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	:	01293
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
	Skin corrosion/irritation	Category 2
	Serious eye damage/eye irritation	Category 1
	Specific target organ toxicity (repeated exposure)	Category 1 (bone)
Environmental hazards	Aquatic acute	Category 3
	Aquatic chronic	Category 3

Hazard pictograms

Signal word : Danger

Hazard statements :
Toxic if swallowed
Causes skin irritation
Causes serious eye damage
Causes damage to organs (bone) through prolonged or repeated exposure
Harmful to aquatic life
Harmful to aquatic life with long lasting effects

Precautionary statements

Prevention :
Do not breathe dust.
Wash hands, forearms and face thoroughly after handling.
Do not eat, drink or smoke when using this product.
Avoid release to the environment.
Wear protective gloves/protective clothing/eye protection/face protection.

Response	:	IF SWALLOWED: Immediately call a POISON CENTER or doctor. IF ON SKIN: Wash with plenty of water. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor. Get medical advice/attention if you feel unwell. Rinse mouth. If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash it before reuse.
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
Ammonium fluoride	≥ 92	NH4F	Listed	235-185-9	12125-01-8

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	:	Rinse mouth with water. Give the victim one or two glasses of water or milk. Do not induce vomiting. Get medical treatment as soon as possible.
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	:	Thermal decomposition emits harmful ammonium hydrogen fluoride, ammonia.
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)	:	Wear breathing apparatus.

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.

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 : As the chemical is deliquescent, keep the bottle tightly closed and store in a cool place.

Material used in packaging/containers : Polyethylene, Polypropylene, etc.
Do not use glass and metals.

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 : Ammonia like

pH : 5 - 7.5 (50g/L, 25℃)

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	:	Non flammable.
Vapor pressure	:	No data available
Relative density	:	No data available
Density	:	1.01 g/cm^3 (20℃)
Relative gas density	:	1.28
Solubility	:	Organic solvents: Slightly soluble in ethanol. Water: 820 g/L (20℃)
Partition coefficient n-octanol/water (log Pow)	:	-4.37
Explosive limits (vol %)	:	No data available
Viscosity, kinematic	:	No data available
Particle characteristics	:	No data available

10. Stability and reactivity

Reactivity	:	Contact with an acids produces hydrogen fluoride. Contact with alkaline substances produces ammonia.
Chemical stability	:	Stable under normal conditions. Deliquescent. Sublimate. In addition, ammonia is gradually released at room temperature to produce ammonium hydrogen fluoride.
Possibility of hazardous reactions	:	It is known that it reacts explosively with chlorine trifluoride, which is an oxidizing gas.
Conditions to avoid	:	Light, heat, moisture.
Incompatible materials	:	Acids, alkaline substances.
Hazardous decomposition products	:	Hydrogen fluoride, ammonium hydrogen fluoride, ammonia.

11. Toxicological information

Acute toxicity (oral)	:	Toxic if swallowed rat 50mg/kg ＜ LD50 ≦ 300mg/kg (ODCD TG 423 compliant)
Acute toxicity (dermal)	:	Classification not possible
Acute toxicity (inhalation)	:	No classification (gas) No classification (vapor) Classification not possible (dust, mist)
Skin corrosion/irritation	:	Causes skin irritation Based on the report that strong irritation was observed in "Reconstructed human epidermis test method (ODCD TG 439 compliant)", it was classified into category 2.
Serious eye damage/irritation	:	Causes serious eye damage Based on the report that serious damage was observed in "Bovine Coroneal Opacity and Permeability Test Method (OECD TG 437 compliant)", it was classified into category 1.
Respiratory sensitization	:	Classification not possible
Skin sensitization	:	Classification not possible
Germ cell mutagenicity	:	Classification not possible
Carcinogenicity	:	No classification IARC classifies fluorides (inorganic, used in drinking-water) as group 3 (not classifiable as to its carcinogenicity to humans).
Reproductive toxicity	:	Classification not possible

STOT-single exposure	:	Classification not possible Besides, there are reports that fluorides cause respiratory tract irritation and corrosion of the mucous membranes by the inhalation exposure and cause systemic intoxication by the oral ingestion.
STOT-repeated exposure	:	Causes damage to organs (bone) through prolonged or repeated exposure There were no findings of effects by repeated exposure to this substance. However, it is reported that osteosclerosis will occur due to excessive accumulation of fluorine in the bone by the repeated exposure to fluorides through the inhalation or oral route and this substance was also considered to indicate the same property. Therefore, it was classified into category 1 (bone).
Aspiration hazard	:	Classification not possible

12. Ecological information

Ecotoxicity

Aquatic acute	:	Harmful to aquatic life Palaemonetes pugio LC50=69.6mg/L/96h
Aquatic chronic	:	Harmful to aquatic life with long lasting effects

Persistence and degradability

No additional information available

Bioaccumulative potential

Low bioconcentration
log Pow : -4.37

Mobility in soil

No additional information available

Hazardous to the ozone layer

Ozone	:	Classification not possible

13. Disposal considerations

Ecological waste information	:	Add the chemical in a large amount of calcium hydroxide solution gradually to precipitate calcium fluoride. Filter the precipitation and bury in a landfill site approved for hazardous waste disposal. Or consult approved 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)	:	2505
Proper Shipping Name (IMDG)	:	AMMONIUM FLUORIDE
Packing group (IMDG)	:	III
Transport hazard class(es) (IMDG)	:	6.1

Air transport(IATA)

UN-No. (IATA)	:	2505

Proper Shipping Name (IATA)	:	Ammonium fluoride
Packing group (IATA)	:	III
Transport hazard class(es) (IATA)	:	6.1
Marine pollutant	:	Not applicable
MFAG-No	:	154

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 17322 Chemical Products, The Chemical Daily Co. (2022) .
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.