Safety data sheet

Printing date 29.03.2023 Version number 1 Revision: 29.03.2023

* SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name: AMMONIUM FLUORIDE
Article number: NH4F STD
1.2 Relevant identified uses of the substance or mixture and uses advised against:
No further relevant information available.

1.3 Details of the supplier of the safety data sheet
Manufacturer/Supplier:
DAIKIN INDUSTRIES, LTD. CHEMICALS DIVISION:
OSAKA UMEDA TWIN TOWERS SOUTH, 1-13-1 Umeda, Kita-ku, Osaka-shi, Osaka, 530-0001, Japan
Phone:+81-6-6147-9702 Fax:+81-6-6147-9807

Further information obtainable from: http://www.daikin.com/
1.4 Emergency telephone number:
Japan: +81-6-6349-7521
China: +86-532-8388-9090, +86-21-34151689
South Korea: +82-2-568-1722
Americas: CHEMTREC +1-800-424-9300 (Outside US/Canada: +1-703-527-3887)
Europe: +49-211-179 225-0

* SECTION 2: Hazard identification

2.1 Classification of the substance or mixture
Classification according to Regulation (EC) No 1272/2008

Acute Tox. 3 H301 Toxic if swallowed.

STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.

Met. Corr.1 H290 May be corrosive to metals.

STOT SE 3 H335 May cause respiratory irritation.

Aquatic Chronic 3 H412 Harmful to aquatic life with long lasting effects.

2.2 Label elements
Labelling according to Regulation (EC) No 1272/2008:
The product is classified and labelled according to the CLP regulation.
Signal word: Danger

Hazard-determining components of labelling:
Ammonium fluoride
Precautionary statements:
P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
P330 Rinse mouth.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P405 Store locked up.
P406 Store in a corrosion resistant container / container with a resistant inner liner.

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Trade name: AMMONIUM FLUORIDE

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

SECTION 3: Composition/information on ingredients

Information on ingredients:

CAS: 12125-01-8 Ammonium fluoride 40%
Acute Tox. 3, H301; Acute Tox. 3, H311; Acute Tox. 3, H331

CAS: 7732-18-5 Water 60%
Additional information: For the wording of the listed hazard phrases refer to section 16.

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SECTION 4: First aid measures

4.1 Description of first aid measures
General information:
In case of irregular breathing or respiratory arrest provide artificial respiration.
Immediately remove any clothing soiled by the product.
Remove breathing equipment only after contaminated clothing have been completely removed.
Seek immediate medical advice.
First aiders shall pay attention to self-protection.
After inhalation:
Supply fresh air or oxygen; call for doctor.
Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult a doctor if symptoms persist.
In case of unconsciousness place patient stably in side position for transportation.
After skin contact:
After rinsing with water thoroughly, apply 2.5% Ca-gluconate solution or Ca-gluconate gel immediately. Do not rub hard.
Apply the solution or the gel every 1-2 hours. Continue applying them every several hours even after the pain is eased.
If they are not at hand, keep rinsing with warm water for at least 30 minutes and call for a doctor immediately. Hand this SDS to the doctor.
Consult a doctor in case of complaints.
After eye contact:
Rinse opened eye for several minutes under running water. Then consult an opthalmologist.
Consult an ophthalmologist in case of complaints.
After swallowing: Do not induce vomiting; Consult a doctor immediately.
4.2 Most important symptoms and effects, both acute and chronic:
After skin contact: the affected skin becomes painful and red.
After eye contact: irritation of the mucous membranes.
After swalloing: nausea, stomachache.
Protection of rescuers: Wear self-contained breathing apparatus and fully protective suit to avoid contact with toxic substances.
4.3 Indication of any immediate medical attention and special treatment needed:
Medical supervision for at least 48 hours.

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SECTION 5: Firefighting measures

5.1 Extinguishing media
Suitable extinguishing agents:
CO2, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
Water spray
Foam
Fire-extinguishing powder
Dry sand
CO_2
5.2 Special hazards arising from the substance or mixture:
Can form explosive gas-air mixtures.
Formation of toxic gases is possible during heating or in case of fire.

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5.3 Advice for firefighters:
Cool the container thoroughly with a large amount of water even after extinguishment.
In case of a large fire: stay a safe distance away from the fire and use unmanned hose holder or monitor nozzles.
If impossible, evacuate from the fire and burn in until the materials disappear.
Remove receptacles from area of fire if possible.
Protective equipment:
Wear fully protective suit.
Wear self-contained breathing apparatus and protective suit.
Do not inhale explosion gases or combustion gases.

* SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures:
Wear protective clothing.
Ensure adequate ventilation before entering the area.
Stay on the windward side.
Keep out unauthorized persons.
Wear appropriate protective devices (See Section 8 Exposure Controls/Personal Protection).
Avoid contact with eyes and skin.
Do not swallow the product.
6.2 Environmental precautions:
Dilute with plenty of water.
Do not allow to enter sewers/surface or ground water.
Must not be emitted into the environment.
6.3 Methods and material for containment and cleaning up:
For a small amount of leakage: Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders) or collect in an empty container that can be sealed tightly.
Use neutralising agent.
Ensure adequate ventilation.
For a large amount of leakage: Enclose with banks to avoid outflow. Lead the leakage to a safe place and collect.
Remove gas with water haze. After recovering it, rinse with a large amount of water.
6.4 Reference to other sections:
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

* SECTION 7: Handling and storage

7.1 Precautions for safe handling:
Open and handle receptacle with care.
Prevent formation of aerosols.
Ensure good ventilation/exhaustion at the workplace.
Do not handle until all safety precautions have been read and understood.
Information about fire - and explosion protection:
Keep ignition sources away - Do not smoke.
Keep respiratory protective device available.
7.2 Conditions for safe storage, including any incompatibilities:
Storage
Requirements to be met by storerooms and receptacles:
Store only in the original receptacle.
Store in a cool and dry location.
Provide acid-resistant floor.
Prevent any seepage into the ground.
Information about storage in one common storage facility:
Do not store together with acids.
Do not store together with alkalis (caustic solutions).
See section 10 for information on incompatible materials.
Further information about storage conditions:
Keep container tightly sealed.
Protect from heat and direct sunlight.

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Store containers in a well ventilated area.
Store locked up.
7.3 Specific end use(s): *No further relevant information available.*

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SECTION 8: Exposure controls/personal protection

8.1 Control parameters *No further information available.*
Ingredients with limit values that require monitoring at the workplace:
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
Additional information: *The lists valid during the making were used as basis.*

8.2 Exposure controls
Appropriate engineering controls
Install eyewash containers and safety showers in worksites where the product is stored or handled.
Keep the process closed, equip with local exhaust ventilation and take other engineering measurements to control airborne concentration below administrative level or threshold limit value.
Individual protection measures, such as personal protective equipment
General protective and hygienic measures:
Keep away from foodstuffs, beverages and feed.
Store protective clothing separately.
Immediately remove all soiled and contaminated clothing
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.
Do not eat or drink while working.
Keep away from tobacco products.
Respiratory protection: *Use respiratory protective device with filters for acid gases.*
Hand protection

Protective gloves

Material of gloves: *Fluorocarbon rubber*
Penetration time of glove material
The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.
Eye/face protection

Goggles are recommended during refilling

Safety glasses
Tightly sealed goggles
Body protection:
Boots
Apron
Protective work clothing
Full head, face and neck protection

Acid resistant protective clothing including boots and apron

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SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties
General Information

Physical state	*Fluid*
Colour:	*Colourless*

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Odour:	Pungent
Odour threshold:	Not determined.
Melting point/freezing point:	-12 - -13 °C (Crystal deposition)
Boiling point or initial boiling point and boiling range	Undetermined.
Flammability	Not applicable.
Lower and upper explosion limit	
Lower explosive limit:	No further information available.
Upper explosive limit:	Not determined.
Flash point:	Not applicable.
Decomposition temperature:	No further information available.
pH	Not determined.
Viscosity:	
Kinematic viscosity	Not determined.
Dynamic:	Not determined.
Solubility	
water:	Fully miscible.
Partition coefficient n-octanol/water (log value)	No further information available.
Vapour pressure:	No further information available.
Density and/or relative density	
Density at 20 °C:	1.11 g/cm³
	Not determined.
Relative density	Not determined.
Vapour density	Not determined.
Particle characteristics	No further information available.

9.2 Other information:

Form:	Liquid
Auto-ignition temperature:	Product is not self-igniting.
Explosive properties:	Product does not present an explosion hazard.
Evaporation rate	Not determined.

Information with regard to physical hazard classes

Explosives	Not applicable
Flammable gases	Not applicable
Aerosols	Not applicable
Oxidising gases	Not applicable
Gases under pressure	Not applicable
Flammable liquids	Not applicable
Flammable solids	Not applicable
Self-reactive substances and mixtures	Not applicable
Pyrophoric liquids	Not applicable
Pyrophoric solids	Not applicable
Self-heating substances and mixtures	Not applicable
Substances and mixtures, which emit flammable gases	
in contact with water	Not applicable
Oxidising liquids	Not applicable
Oxidising solids	Not applicable
Organic peroxides	Not applicable

Corrosive to metals

May be corrosive to metals.

Desensitised explosives	Not applicable

*
SECTION 10: Stability and reactivity

10.1 Reactivity May be corrosive to metals.
10.2 Chemical stability
Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
10.3 Possibility of hazardous reactions:
Reacts with alkali (lyes).
Reacts with acids.

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Reacts with carbon dioxide.
10.4 Conditions to avoid: *Keep away from heat, sparks, flame, high temperature.*
10.5 Incompatible materials: *Glass, concrete and silicon*
10.6 Hazardous decomposition products:
Hydrogen fluoride
Ammonia

* SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008
Acute toxicity *no data*
LD/LC50 values relevant for classification: *No further information available.*
Skin corrosion/irritation: *No further information available.*
Serious eye damage/irritation: *No further information available.*
after inhalation: *No further information available.*
Respiratory or skin sensitisation: *Based on available data, the classification criteria are not met.*
Germ cell mutagenicity: *Based on available data, the classification criteria are not met.*
Carcinogenicity: *Based on available data, the classification criteria are not met.*
Reproductive toxicity: *Based on available data, the classification criteria are not met.*
STOT-single exposure:
May cause respiratory irritation.
STOT-repeated exposure:
May cause damage to organs through prolonged or repeated exposure.
Aspiration hazard: *Based on available data, the classification criteria are not met.*
Other information (about experimental toxicology): *No further information available.*
Subacute to chronic toxicity: *No further information available.*
11.2 Information on other hazards:
Endocrine disrupting properties:

None of the ingredients is listed.

* SECTION 12: Ecological information

12.1 Toxicity
Aquatic toxicity: *No further relevant information available.*
12.2 Persistence and degradability: *No further relevant information available.*
12.3 Bioaccumulative potential: *No further relevant information available.*
12.4 Mobility in soil: *No further relevant information available.*
12.5 Results of PBT and vPvB assessment
PBT: *No further relevant information available.*
vPvB: *No further information available.*
12.6 Endocrine disrupting properties *The product does not contain substances with endocrine disrupting properties.*
12.7 Other adverse effects:
Ecotoxical effects: *no data*
Additional ecological information:
General notes:
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
Must not reach sewage water or drainage ditch undiluted or unneutralised.

* SECTION 13: Disposal considerations

13.1 Waste treatment methods
Recommendation:
Must not be disposed together with household garbage. Do not allow product to reach sewage system.
Disposal must be made according to official regulations.

Uncleaned packaging
Recommendation: *Disposal must be made according to official regulations.*
Recommended cleansing agents: *Water, if necessary together with cleansing agents.*

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Trade name: AMMONIUM FLUORIDE

* SECTION 14: Transport information

14.1 UN number or ID number
ADR, IMDG, IATA *UN3287*
14.2 UN proper shipping name:
ADR, IMDG, IATA *TOXIC LIQUID, INORGANIC, N.O.S. (AMMONIUM FLUORIDE)*
14.3 Transport hazard class(es):

ADR

Class: *6.1 (T4) Toxic substances.*
Label: *6.1*
IMDG, IATA

Class: *6.1 Toxic substances.*
Label: *6.1*
14.4 Packing group:
ADR, IMDG, IATA *III*
14.5 Environmental hazards:
Marine pollutant: *No*
14.6 Special precautions for user: *Warning: Toxic substances.*
Hazard identification number (Kemler code): *60*
EMS Number: *F-A,S-A*
Segregation groups: *Ammonium compounds*
Stowage Category *A*
Stowage Code *SW2 Clear of living quarters.*
14.7 Maritime transport in bulk according to IMO instruments *Not applicable.*
Transport/Additional information: *Avoid direct sunlight. Make sure of no damage, corrosion, leaks on the receptacles.*
Take necessary measures for preventing cargo shift.

ADR
Limited quantities (LQ): *5L*
Excepted quantities (EQ) *Code: E1*
Maximum net quantity per inner packaging: 30 ml
Maximum net quantity per outer packaging: 1000 ml
Transport category: *2*
Tunnel restriction code: *E*
IMDG
Limited quantities (LQ) *5L*
Excepted quantities (EQ) *Code: E1*
Maximum net quantity per inner packaging: 30 ml
Maximum net quantity per outer packaging: 1000 ml
UN "Model Regulation": *UN 3287 TOXIC LIQUID, INORGANIC, N.O.S. (AMMONIUM FLUORIDE), 6.1, III*

* SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
No further relevant information available.

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Labelling according to Regulation (EC) No 1272/2008
The product is classified and labelled according to the CLP regulation.
Hazard pictograms

GHS05 GHS06 GHS08

Signal word *Danger*

Hazard-determining components of labelling:
Ammonium fluoride
Hazard statements
H290 May be corrosive to metals.
H301 Toxic if swallowed.
H335 May cause respiratory irritation.
H373 May cause damage to organs through prolonged or repeated exposure.
H412 Harmful to aquatic life with long lasting effects.
Precautionary statements
P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
P330 Rinse mouth.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P405 Store locked up.
P406 Store in a corrosion resistant container / container with a resistant inner liner.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

National regulations *No further information available.*
15.2 Chemical safety assessment: *A Chemical Safety Assessment has not been carried out.*

* *SECTION 16: Other information*

The product is for the industrial use only. We do not guarantee the safety in case the product is used for the other purposes. When using the product for health-care application or food/feed application, consult us in advance.
This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

Contact: *http://www.daikin.com/*
Abbreviations and acronyms:
ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
Met. Corr.1: Corrosive to metals – Category 1
Acute Tox. 3: Acute toxicity – Category 3
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2
Aquatic Chronic 3: Hazardous to the aquatic environment - long-term aquatic hazard – Category 3
**** Data compared to the previous version altered.***