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**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifier****Trade name: BUFFERD HYDROFLUORIC ACID 110****Article number: BHF110****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 SE 2 H371 May cause damage to organs.

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



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

Skin Corr. 1A H314 Causes severe skin burns and eye damage.

Eye Dam. 1 H318 Causes serious eye damage.

**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

Ammonium bifluoride

**Precautionary statements:**

P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P405 Store locked up.

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

**SECTION 3: Composition/information on ingredients****Information on ingredients:**

CAS: 1341-49-7 Ammonium bifluoride	15.0%
Acute Tox. 3, H301 Skin Corr. 1B, H314 Specific concentration limits: Skin Corr. 1B; H314: $C \geq 1\%$ Skin Irrit. 2; H315: $0.1\% \leq C < 1\%$ Eye Irrit. 2; H319: $0.1\% \leq C < 1\%$	
CAS: 12125-01-8 Ammonium fluoride	28.0%
Acute Tox. 3, H301; Acute Tox. 3, H311; Acute Tox. 3, H331	
CAS: 7732-18-5 Water	57.0%

**Additional information:** For the wording of the listed hazard phrases refer to section 16.

**SECTION 4: First aid measures****4.1 Description of first aid measures****General information:**

Remove breathing equipment only after contaminated clothing have been completely removed.

In case of irregular breathing or respiratory arrest provide artificial respiration.

Immediately remove any clothing soiled by the product.

Seek immediate medical advice.

First aiders shall pay attention to self-protection.

**After inhalation:**

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.

**After eye contact:** Rinse opened eye for several minutes under running water. Then consult an ophthalmologist.

**After swallowing:**

Do not induce vomiting; Consult a doctor immediately.

Drink plenty of water and provide fresh air. 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 swallowing: 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.

**SECTION 5: Firefighting measures****5.1 Extinguishing media****Suitable extinguishing agents:**

Dry sand

Water spray

Foam

Fire-extinguishing powder

CO<sub>2</sub>

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**Trade name: BUFFERD HYDROFLUORIC ACID 110****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.***5.3 Advice for firefighters:***Remove receptacles from area of fire if possible.**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.***Protective equipment:***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:***Must not be emitted into the environment.**Do not allow to enter sewers/surface or ground water.***6.3 Methods and material for containment and cleaning up:***Use neutralising agent.**Dispose contaminated material as hazardous waste according to section 13.**Ensure adequate ventilation.**Remove gas with water haze. After recovering it, rinse with a large amount of water.**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.***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.***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.**SECTION 8: Exposure controls/personal protection****8.1 Control parameters****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.

**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:**

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**Eye/face protection**

Tightly sealed goggles

**Body protection:**

Full head, face and neck protection



Acid resistant protective clothing including boots and apron

**\* SECTION 9: Physical and chemical properties****9.1 Information on basic physical and chemical properties****General Information****Physical state**

Fluid

**Colour:**

Colourless

**Odour:**

Pungent

**Melting point/freezing point:**

ca.5 °C

**Boiling point or initial boiling point and boiling range** Undetermined.**Flammability**

Product is not flammable.

**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**

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<b>Viscosity:</b>	
<b>Kinematic viscosity</b>	No further information available.
<b>Solubility</b>	
<b>water:</b>	Fully miscible.
<b>Partition coefficient n-octanol/water (log value)</b>	No further information available.
<b>Vapour pressure:</b>	-
<b>Density and/or relative density</b>	
<b>Density at 20 °C:</b>	1.116
<b>Vapour density</b>	No further information available.
<b>Particle characteristics</b>	No further information available.
<b>9.2 Other information:</b>	
<b>Form:</b>	Liquid
<b>Auto-ignition temperature:</b>	Product is not self-igniting.
<b>Information with regard to physical hazard classes</b>	
<b>Explosives</b>	Not applicable
<b>Flammable gases</b>	Not applicable
<b>Aerosols</b>	Not applicable
<b>Oxidising gases</b>	Not applicable
<b>Gases under pressure</b>	Not applicable
<b>Flammable liquids</b>	Not applicable
<b>Flammable solids</b>	Not applicable
<b>Self-reactive substances and mixtures</b>	Not applicable
<b>Pyrophoric liquids</b>	Not applicable
<b>Pyrophoric solids</b>	Not applicable
<b>Self-heating substances and mixtures</b>	Not applicable
<b>Substances and mixtures, which emit flammable gases</b>	
<b>in contact with water</b>	Not applicable
<b>Oxidising liquids</b>	Not applicable
<b>Oxidising solids</b>	Not applicable
<b>Organic peroxides</b>	Not applicable
<b>Corrosive to metals</b>	
<b>May be corrosive to metals.</b>	
<b>Desensitised explosives</b>	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 acids.

Reacts with alkali (lyes).

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**

Toxic if swallowed.

**LD/LC50 values relevant for classification:** No further information available.

**Skin corrosion/irritation:**

Causes severe skin burns and eye damage.

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Trade name: **BUFFERD HYDROFLUORIC ACID 110****Serious eye damage/irritation:**

Causes serious eye damage.

**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 damage to organs.

**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** For information on endocrine disrupting properties see section 11.**12.7 Other adverse effects:****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:** Disposal must be made according to official regulations.**Uncleaned packaging****Recommendation:** Disposal must be made according to official regulations.**SECTION 14: Transport information****14.1 UN number or ID number****ADR, IMDG, IATA**

UN2817

**14.2 UN proper shipping name:****ADR:**

2817 AMMONIUM HYDROGENDIFLUORIDE SOLUTION

**IMDG, IATA**

AMMONIUM HYDROGENDIFLUORIDE SOLUTION

**14.3 Transport hazard class(es):****ADR****Class:**

8 Corrosive substances.



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**IMDG****Class:** 8 Corrosive substances.  
**Label:** 8/6.1  
**IATA****Class:** 8 Corrosive substances.  
**Label:** 8 (6.1)**14.4 Packing group:**  
**ADR, IMDG, IATA**

II

**14.5 Environmental hazards:****Marine pollutant:**

No

**14.6 Special precautions for user:**

Warning: Corrosive substances.

**EMS Number:**

F-A,S-B

**Segregation groups:**

Acids, ammonium compounds

**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):**

1L

**Excepted quantities (EQ)**

Code: E2

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 500 ml

**UN "Model Regulation":**

UN2817, AMMONIUM HYDROGENDIFLUORIDE SOLUTION, 8 (6.1), II

**\* SECTION 15: Regulatory information****15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

No further relevant information available.

**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

Ammonium bifluoride

**Hazard statements**

H290 May be corrosive to metals.

H301 Toxic if swallowed.

H314 Causes severe skin burns and eye damage.

H371 May cause damage to organs.

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

**Precautionary statements**

P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P405 Store locked up.

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

**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.

**Department issuing SDS:** EHS Department

**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

Skin Corr. 1A: Skin corrosion/irritation – Category 1A

Skin Corr. 1B: Skin corrosion/irritation – Category 1B

Eye Dam. 1: Serious eye damage/eye irritation – Category 1

STOT SE 2: Specific target organ toxicity (single exposure) – Category 2

STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2

\* **Data compared to the previous version altered.**