

Material Safety Data Sheet

Version 3.3
Revision Date 11/17/2009
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1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Ammonium fluoride – hydrofluoric acid mixture

Product Number : 40207
Brand : Aldrich

Company : Sigma-Aldrich Canada, Ltd
2149 Winston Park Drive
OAKVILLE ON L6H 6J8
CANADA

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2. COMPOSITION/INFORMATION ON INGREDIENTS

| CAS-No. | EC-No. | Index-No. | Concentration |
|----------------------------|-----------|--------------|-------------------|
| Ammonium fluoride | | | |
| 12125-01-8 | 235-185-9 | 009-006-00-8 | >= 10 - <= 30 % |
| Ammonium bifluoride | | | |
| 1341-49-7 | 215-676-4 | 009-009-00-4 | >= 10 - <= 30 % |
| Hydrofluoric acid | | | |
| 7664-39-3 | 231-634-8 | 009-003-00-1 | >= 6.2 - <= 6.6 % |

3. HAZARDS IDENTIFICATION**Emergency Overview****Target Organs**

Bone, Liver, Kidney

WHMIS Classification

| | | |
|-----|---|---------------------------------|
| D1A | Very Toxic Material Causing Immediate and | Highly toxic by ingestion |
| D2B | Serious Toxic Effects | Highly toxic by skin absorption |
| E | | Highly toxic by inhalation |
| | | Moderate eye irritant |
| | | Corrosive |

HMIS Classification

Health hazard: 4
Chronic Health Hazard: *
Flammability: 0
Physical hazards: 0

Potential Health Effects

| | |
|-------------------|---|
| Inhalation | May be fatal if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract. |
| Skin | Causes skin burns. May be fatal if absorbed through skin. |
| Eyes | Causes eye burns. |
| Ingestion | May be fatal if swallowed. Causes burns. |

4. FIRST AID MEASURES

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled

If breathed in, move person into fresh air. If not breathing give artificial respiration. Consult a physician.

In case of skin contact

Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact

Continue rinsing eyes during transport to hospital. Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIRE-FIGHTING MEASURES

Flammable properties

Flash point no data available

Ignition temperature no data available

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for fire-fighters

Wear self contained breathing apparatus for fire fighting if necessary.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.

Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

Methods for cleaning up

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Normal measures for preventive fire protection.

Storage

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Moisture sensitive.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

| Components | CAS-No. | Value | Control parameters | Update | Basis |
|---------------------|--|--------|--------------------|------------|---|
| Ammonium bifluoride | 1341-49-7 | TWA | 2.5 mg/m3 | 2004-04-30 | Canada. Alberta, Occupational Health and Safety Code (table 2: OEL) |
| | | TWA | 2.5 mg/m3 | 2000-01-12 | Canada. Quebec OELs |
| | | TWAE V | 2.5 mg/m3 | 2005-02-03 | Canada. Ontario OELs |
| | | TWA | 2.5 mg/m3 | 2004-08-01 | Canada. British Columbia OEL |
| Hydrofluoric acid | 7664-39-3 | (c) | 3 ppm 2.3 mg/m3 | 2007-01-01 | Canada. Alberta, Occupational Health and Safety Code (table 2: OEL) |
| | | C | 2 ppm | 2006-11-29 | Canada. British Columbia OEL |
| | | TWAE V | 0.5 ppm | 2005-12-17 | Canada. Ontario OELs |
| | | CEV | 2 ppm | 2005-12-17 | Canada. Ontario OELs |
| | | C | 3 ppm 2.6 mg/m3 | 2006-12-29 | Canada. Quebec OELs |
| Remarks | A substance which may not be recirculated in accordance with section 108 | | | | |

Personal protective equipment

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection

Handle with gloves.

Eye protection

Tightly fitting safety goggles. Faceshield (8-inch minimum).

Skin and body protection

Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hygiene measures

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form liquid

Safety data

pH no data available

Melting point no data available

Boiling point no data available

Flash point no data available

Ignition temperature no data available

Lower explosion limit no data available

Upper explosion limit no data available

Water solubility no data available

10. STABILITY AND REACTIVITY

Storage stability

Stable under recommended storage conditions.

Materials to avoid

Strong oxidizing agents

Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - nitrogen oxides (NO_x), Hydrogen fluoride

11. TOXICOLOGICAL INFORMATION

Acute toxicity

no data available

Irritation and corrosion

no data available

Sensitisation

no data available

Chronic exposure

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (Ammonium bifluoride)

Potential Health Effects

Inhalation May be fatal if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.

Skin Causes skin burns. May be fatal if absorbed through skin.

Eyes Causes eye burns.

Ingestion May be fatal if swallowed. Causes burns.

Target Organs Bone, Liver, Kidney,

12. ECOLOGICAL INFORMATION

Elimination information (persistence and degradability)

no data available

Ecotoxicity effects

no data available

Further information on ecology

no data available

13. DISPOSAL CONSIDERATIONS

Product

Observe all federal, state, and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)

UN-Number: 2922 Class: 8 (6.1) Packing group: II
Proper shipping name: Corrosive liquids, toxic, n.o.s.
Reportable Quantity (RQ): 333 lbs
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG

UN-Number: 2922 Class: 8 (6.1) Packing group: II EMS-No: F-A, S-B
Proper shipping name: CORROSIVE LIQUID, TOXIC, N.O.S.
Marine pollutant: No

IATA

UN-Number: 2922 Class: 8 (6.1) Packing group: II
Proper shipping name: Corrosive liquid, toxic, n.o.s.

15. REGULATORY INFORMATION

DSL Status

All components of this product are on the Canadian DSL list.

WHMIS Classification

| | | |
|-----|---|---------------------------------|
| D1A | Very Toxic Material Causing Immediate and | Highly toxic by ingestion |
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| E | | Highly toxic by inhalation |
| | | Moderate eye irritant |
| | | Corrosive |

16. OTHER INFORMATION

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Co., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale.