

SAFETY DATA SHEET

Version 8.6
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SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Hydrofluoric acid 48% for analysis EMSURE®
ACS,ISO,Reag. Ph Eur

Product Number : 1.00334
Catalogue No. : 100334
Brand : Millipore

1.2 Other means of identification

No data available

1.3 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Reagent for analysis

1.4 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Pty. Ltd.
Suite 1, Level 1, Building B
11 Talavera Road
MACQUARIE PARK NSW 2113
AUSTRALIA

Telephone : +61 1800 800 097

1.5 Emergency telephone

Emergency Phone # : Free call (24/7): 1800 448 465
Int'l (24/7): +61 2 9037 2994
(CHEMTREC)

SECTION 2: Hazards identification

2.1 GHS Classification

Acute toxicity, Oral (Category 2), H300
Acute toxicity, Inhalation (Category 2), H330
Acute toxicity, Dermal (Category 1), H310
Skin corrosion/irritation (Category 1), H314
Serious eye damage/eye irritation (Category 1), H318

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal Word : Danger

Hazard statement(s)
H300 + H310 + H330 : Fatal if swallowed, in contact with skin or if inhaled.
H314 : Causes severe skin burns and eye damage.

Precautionary statement(s)

Prevention

P260	Do not breathe mist or vapors.
P262	Do not get in eyes, on skin, or on clothing.
P264	Wash skin thoroughly after handling.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P284	Wear respiratory protection.

Response

P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER/ doctor. Rinse mouth.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.
P305 + P351 + P338 + P310	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/ doctor.

Storage

P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
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2.3 Other hazards - none

SECTION 3: Composition/information on ingredients

Substance / Mixture : Mixture

3.2 Mixtures

Hazardous ingredients

Component	Classification	Concentration
Hydrofluoric acid		
CAS-No. 7664-39-3 EC-No. 231-634-8 Index-No. 009-003-00-1	Acute Tox. 2; Acute Tox. 1; Skin Corr./Irrit. 1A; Eye Dam./Irrit. 1; H300, H330, H310, H314, H318 Concentration limits: >= 7 %: Skin Corr. 1A, H314; 1 - < 7 %: Skin Corr. 1B, H314; 0.1 - < 1 %: Eye Irrit. 2, H319;	>= 30 - < 50 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice

Countermeasurements must be implemented at once. First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.

If inhaled

After inhalation: fresh air. Immediately call in physician. Keep respiratory tract clear. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.

In case of skin contact

After contact with skin: Rinse with plenty of water for at least 10 minutes. Immediately remove contaminated clothes. Apply calcium gluconate gel (preparation: boil 5 g of calcium gluconate in 85 ml of hot distilled water, add 10 g glycerol. Allow 5 g of Carmellose-sodium to swell in the hot solution. Stable for 6 months, store in a cool place) and massage into the skin until the pain subsides, in between rinse with water and apply fresh gel. Continue gel therapy for another 15 minutes after the pain has subsided. If no calcium gluconate gel is available, apply several dressings thoroughly moistened with 20 % calcium gluconate solution. Medical advice absolutely required!

In case of eye contact

After contact with eyes: Rinse with plenty of water keeping eyelids open, protecting the unaffected eye (at least 10 minutes). Seek medical advice immediately! Remove contact lenses.

If swallowed

After swallowing: Immediately give to drink plenty of water, add calcium (in the form of calcium gluconate or calcium lactate). Caution: In the case of vomiting risk of perforation! Administer more calcium gluconate solution. Laxative: Sodium sulfate (1 tablespoon/1/4 l water). Seek medical advice immediately. Ensure that injured persons remain calm and protect them against heat loss.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

Note for the doctor: It is recommended to consult a doctor with experience in the treatment of lesions caused by hydrofluoric acid. If a systemic effect is suspected, monitoring and treatment in an intensive care unit is urgently required. Caution, ventricular fibrillation due to electrolyte imbalance.

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

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture

Hydrogen fluoride

Not combustible.

Fire may cause evolution of:

Hydrogen fluoride

Ambient fire may liberate hazardous vapours.

5.3 Advice for firefighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information

Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent and neutralising material (e.g. Chemizorb® HF, Merck Art. No. 101591). Dispose of properly. Clean up affected area.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling

Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

Hygiene measures

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

In plastic containers.

Tightly closed. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.

Recommended storage temperature see product label.

Storage class

Storage class (TRGS 510): 6.1B: Non-combustible, acute toxic Cat. 1 and 2 / very toxic hazardous materials

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.3 no other specific uses are stipulated.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
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Hydrofluoric acid	7664-39-3	Peak limit	3 ppm 2.6 mg/m ³	Australia. Workplace Exposure Standards for Airborne Contaminants.
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8.2 Exposure controls

Appropriate engineering controls

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

Personal protective equipment

Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Tightly fitting safety goggles

Skin protection

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Splash contact

Material: Chloroprene

Minimum layer thickness: 0.65 mm

Break through time: 240 min

Material tested:KCL 720 Camapren®

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Full contact

Material: butyl-rubber

Minimum layer thickness: 0.7 mm

Break through time: 480 min

Material tested:Butoject® (KCL 898)

Body Protection

Acid-resistant protective clothing, Rubber or plastic boots

Respiratory protection

required when vapours/aerosols are generated. Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure

Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

- | | |
|-------------------|-----------|
| a) Physical state | liquid |
| b) Color | colorless |

c) Odor	stinging
d) Melting point/freezing point	Melting point: ca.-35 °C
e) Initial boiling point and boiling range	ca.106 °C at 1,013 hPa
f) Flammability (solid, gas)	No data available
g) Upper/lower flammability or explosive limits	No data available
h) Flash point	Not applicable
i) Autoignition temperature	Not applicable
j) Decomposition temperature	No data available
k) pH	ca.2 at 20 °C
l) Viscosity	Viscosity, kinematic: No data available Viscosity, dynamic: No data available
m) Water solubility	at 20 °C soluble
n) Partition coefficient: n-octanol/water	No data available
o) Vapor pressure	No data available
p) Density	1.16 g/cm ³ at 20 °C
Relative density	No data available
q) Relative vapor density	No data available
r) Particle characteristics	No data available
s) Explosive properties	Not classified as explosive.
t) Oxidizing properties	none

9.2 Other safety information

No data available

SECTION 10: Stability and reactivity

10.1 Reactivity

No data available

10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions

Risk of ignition or formation of inflammable gases or vapours with:

Alkali metals

Fluorine

Millipore- 1.00334

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The life science business of Merck operates as MilliporeSigma in the US and Canada

Organic Substances
vinyl acetate
Risk of explosion with:
potassium permanganate
alkali hydroxides
strong alkalis
fluorides
Potassium
Metals
sodium
methanesulfonic acid
Nitric acid
with
glycerol
Exothermic reaction with:
Acetic anhydride
Ammonia
ammonium hydroxide
Sodium hydroxide
fuming sulfuric acid
Oxides of phosphorus
silicon compounds
sulfuric acid
bismuth acid
ethanolamine

10.4 Conditions to avoid

Heating.
no information available

10.5 Incompatible materials

glass, Metals, quartzes/silicate ceramics Gives off hydrogen by reaction with metals.

10.6 Hazardous decomposition products

In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Mixture

Acute toxicity

Symptoms: If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the esophagus and the stomach.

Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages: , damage of respiratory tract

Dermal: No data available

Skin corrosion/irritation

Remarks: Mixture causes severe burns.

Serious eye damage/eye irritation

Remarks: Mixture causes serious eye damage.

Risk of blindness!

Respiratory or skin sensitization

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

No data available

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

11.2 Additional Information

Other dangerous properties can not be excluded.

This substance should be handled with particular care.

Handle in accordance with good industrial hygiene and safety practice.

Components**Hydrofluoric acid****Acute toxicity**

Oral: No data available

LC50 Inhalation - Rat - 1 h - 1.34 mg/l - vapor

Remarks: (IUCLID)

Acute toxicity estimate Inhalation - 0.6 mg/l - vapor

(Expert judgment)

Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Symptoms: burns of mucous membranes, Cough, Shortness of breath, Possible damages: , damage of respiratory tract, Resultant lesions may affect the following: , bronchitis, Pneumonia, Lung edema

Acute toxicity estimate Dermal - 5.1 mg/kg

(Expert judgment)

Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Skin corrosion/irritation

Skin - Rabbit

Result: Causes burns. - 4 h

(OECD Test Guideline 404)

Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Remarks: Symptoms may be delayed.

Possible damages:

Necrosis

Tendency of poor wound-healing after penetration of the substance.

Serious eye damage/eye irritation

Eyes - Rabbit
Result: Causes burns.
(OECD Test Guideline 405)
Remarks: (IUCLID)
Remarks: Causes serious eye damage.

Respiratory or skin sensitization

No data available

Germ cell mutagenicity

Test Type: Ames test
Test system: S. typhimurium
Result: negative
Test Type: Chromosome aberration test in vitro
Test system: Chinese hamster ovary cells
Result: Positive results were obtained in some in vitro tests.
Species: Rat
Remarks: Cytogenetic analysis

Carcinogenicity

No data available

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

Acute inhalation toxicity - burns of mucous membranes, Cough, Shortness of breath, Possible damages:, damage of respiratory tract, Resultant lesions may affectthe following:, bronchitis, Pneumonia, Lung edema

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

SECTION 12: Ecological information**12.1 Toxicity****Mixture**

No data available

12.2 Persistence and degradability

No data available

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties

No data available

12.7 Other adverse effects

Endangers drinking-water supplies if allowed to enter soil or water.
Harmful effect due to pH shift.
Forms corrosive mixtures with water even if diluted.
Discharge into the environment must be avoided.

Components

Hydrofluoric acid

Toxicity to daphnia and other aquatic invertebrates(Chronic toxicity) static test NOEC - Daphnia magna (Water flea) - 3.7 mg/l - 21 d
Remarks: (ECHA)

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself. See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14: Transport information

14.1 UN number

ADR/RID: 1790 IMDG: 1790 IATA-DGR: 1790

14.2 UN proper shipping name

ADR/RID: HYDROFLUORIC ACID
IMDG: HYDROFLUORIC ACID
IATA-DGR: Hydrofluoric acid

14.3 Transport hazard class(es)

ADR/RID: 8 (6.1) IMDG: 8 (6.1) IATA-DGR: 8 (6.1)

14.4 Packaging group

ADR/RID: II IMDG: II IATA-DGR: II

14.5 Environmental hazards

ADR/RID: no IMDG Marine pollutant: no IATA-DGR: no

14.6 Special precautions for user

None

14.7 Incompatible materials

glass, Metals, quartzes/silicate ceramics Gives off hydrogen by reaction with metals.

Other regulations

Hazchem Code : 2X

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Standard for the Uniform Scheduling of : No poison schedule number

SECTION 16: Other information**-Full text of H-Statements referred to under sections 2 and 3.**

H300	Fatal if swallowed.
H310	Fatal in contact with skin.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H330	Fatal if inhaled.

Further information

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 Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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