

## SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Revision Date 22.01.2015

Version 13.4

**SECTION 1. Identification of the substance/mixture and of the company/undertaking****1.1 Product identifier**

Catalogue No. 100335  
Product name Hydrofluoric acid 40% Suprapur®  
REACH Registration Number This product is a mixture. REACH Registration Number see section 3.

**1.2 Relevant identified uses of the substance or mixture and uses advised against**

Identified uses Reagent for analysis, Chemical production  
For additional information on uses please refer to the Merck Chemicals portal ([www.merckgroup.com](http://www.merckgroup.com)).

**1.3 Details of the supplier of the safety data sheet**

Company Merck KGaA \* 64271 Darmstadt \* Germany \* Phone:+49 6151 72-0  
Responsible Department EQ-RS \* e-mail: [prodsafe@merckgroup.com](mailto:prodsafe@merckgroup.com)

**1.4 Emergency telephone number** Please contact the regional company representation in your country.

**SECTION 2. Hazards identification****2.1 Classification of the substance or mixture****Classification (REGULATION (EC) No 1272/2008)**

Acute toxicity, Category 2, Oral, H300  
Acute toxicity, Category 2, Inhalation, H330  
Acute toxicity, Category 1, Dermal, H310  
Skin corrosion, Category 1A, H314

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

**Classification (67/548/EEC or 1999/45/EC)**

T+ Very toxic R26/27/28  
C Corrosive R35

For the full text of the R-phrases mentioned in this Section, see Section 16.

**2.2 Label elements****Labelling (REGULATION (EC) No 1272/2008)***Hazard pictograms**Signal word*

Danger

*Hazard statements*

H300 + H310 + H330 Fatal if swallowed, in contact with skin or if inhaled

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H314 Causes severe skin burns and eye damage.

*Precautionary statements*

Prevention

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response

P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position 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.

P308 + P310 IF exposed or concerned: immediately call a POISON CENTER or doctor/ physician.

**Reduced labelling (≤125 ml)**

*Hazard pictograms*



*Signal word*

Danger

*Hazard statements*

H300 + H310 + H330 Fatal if swallowed, in contact with skin or if inhaled

H314 Causes severe skin burns and eye damage.

*Precautionary statements*

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position 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.

P308 + P310 IF exposed or concerned: immediately call a POISON CENTER or doctor/ physician.

## 2.3 Other hazards

None known.

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## SECTION 3. Composition/information on ingredients

Chemical nature Aqueous solution

### 3.1 Substance

Not applicable

### 3.2 Mixture

#### Hazardous components (REGULATION (EC) No 1272/2008)

*Chemical Name (Concentration)*

CAS-No. Registration number Classification

Hydrofluoric acid (>= 25 % - < 50 % )

7664-39-3 \*)

Acute toxicity, Category 2, H300

Acute toxicity, Category 2, H330

Acute toxicity, Category 1, H310

Skin corrosion, Category 1A, H314

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\*) A registration number is not available for this substance as the substance or its use are exempted from registration according to Article 2 REACH Regulation (EC) No 1907/2006, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

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

**Hazardous components (1999/45/EC)**

*Chemical Name (Concentration)*

| CAS-No.                                      | Classification                                 |
|--|--|
| Hydrofluoric acid ( $\geq 25\%$ - $< 50\%$ ) |  |
| 7664-39-3                                    | T+, Very toxic; R26/27/28<br>C, Corrosive; R35 |

For the full text of the R-phrases mentioned in this Section, see Section 16.

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**SECTION 4. First aid measures**

**4.1 Description of first aid measures**

*General advice*

Countermeasurements must be implemented at once. First aider needs to protect himself.

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

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!

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

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**

Irritation and corrosion, bronchitis, Bloody vomiting, cardiovascular disorders, collapse, Convulsions, Pneumonia, Lung oedema  
Risk of blindness!

**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.

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**SECTION 5. Firefighting measures**

**5.1 Extinguishing media**

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*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**

Not combustible.

Ambient fire may liberate hazardous vapours.

Fire may cause evolution of:

Hydrogen fluoride

**5.3 Advice for firefighters**

*Special protective equipment 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.

*Further information*

Cool closed containers exposed to fire with water spray. Suppress (knock down) gases/vapours/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

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**SECTION 6. Accidental release measures**

**6.1 Personal precautions, protective equipment and emergency procedures**

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

Advice for emergency responders: Protective equipment see section 8.

**6.2 Environmental precautions**

Do not empty into 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**

Indications about waste treatment see section 13.

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**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.

Observe label precautions.

*Hygiene measures*

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

**7.2 Conditions for safe storage, including any incompatibilities**

*Storage conditions*

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Requirements for storage areas and containers

In plastic containers.

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

Recommended storage temperature see product label.

**7.3 Specific end use(s)**

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

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**SECTION 8. Exposure controls/personal protection**

**8.1 Control parameters**

**8.2 Exposure controls**

**Engineering measures**

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

See section 7.1.

**Individual protection measures**

Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of the hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the respective supplier.

*Eye/face protection*

Tightly fitting safety goggles

*Hand protection*

full contact:

|                     |                 |
|---------------------|-----------------|
| Glove material:     | polychloroprene |
| Glove thickness:    | 0,65 mm         |
| Break through time: | > 480 min       |

splash contact:

|                     |               |
|---------------------|---------------|
| Glove material:     | natural latex |
| Glove thickness:    | 0,6 mm        |
| Break through time: | > 120 min     |

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374, for example KCL 720 Camapren® (full contact), KCL 706 Lapren® (splash contact).

The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types.

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](http://www.kcl.de)).

*Other protective equipment*

Acid-resistant protective clothing, Rubber or plastic boots

*Respiratory protection*

required when vapours/aerosols are generated.

Recommended Filter type: Filter E-(P3)

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The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

**Environmental exposure controls**

Do not empty into drains.

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**SECTION 9. Physical and chemical properties**

**9.1 Information on basic physical and chemical properties**

|  |                                    |
|--|------------------------------------|
| Form                                       | liquid                             |
| Colour                                     | colourless                         |
| Odour                                      | stinging                           |
| Odour Threshold                            | No information available.          |
| pH   | at 20 °C<br>strongly acid          |
| Melting point                              | ca. -44 °C                         |
| Boiling point/boiling range                | ca. 112 °C<br>at 1.013 hPa         |
| Flash point                                | No information available.          |
| Evaporation rate                           | No information available.          |
| Flammability (solid, gas)                  | No information available.          |
| Lower explosion limit                      | No information available.          |
| Upper explosion limit                      | No information available.          |
| Vapour pressure                            | No information available.          |
| Relative vapour density                    | No information available.          |
| Density                                    | 1,13 g/cm <sup>3</sup><br>at 20 °C |
| Relative density                           | No information available.          |
| Water solubility                           | at 20 °C<br>soluble                |
| Partition coefficient: n-<br>octanol/water | No information available.          |
| Auto-ignition temperature                  | No information available.          |
| Decomposition temperature                  | No information available.          |

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Viscosity, dynamic No information available.  
Explosive properties Not classified as explosive.  
Oxidizing properties none

## 9.2 Other data

none

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## SECTION 10. Stability and reactivity

### 10.1 Reactivity

See section 10.3

### 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, 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, ethanolamine, sulphuric acid, bismuth acid

### 10.4 Conditions to avoid

Heating.

### 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.

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## SECTION 11. Toxicological information

### 11.1 Information on toxicological effects

#### Mixture

#### *Acute oral toxicity*

absorption

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

Acute toxicity estimate: 12,75 mg/kg

Calculation method

#### *Acute inhalation toxicity*

absorption

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

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Acute toxicity estimate: 1,5 mg/l; 4 h ; vapour

Calculation method

*Acute dermal toxicity*

Acute toxicity estimate : 12,75 mg/kg

Calculation method

absorption

*Skin irritation*

Mixture causes severe burns.

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

*Eye irritation*

Mixture causes serious eye damage. Risk of blindness!

*Sensitisation*

This information is not available.

*Germ cell mutagenicity*

This information is not available.

*Carcinogenicity*

This information is not available.

*Reproductive toxicity*

This information is not available.

*Teratogenicity*

This information is not available.

*Specific target organ toxicity - single exposure*

This information is not available.

*Specific target organ toxicity - repeated exposure*

This information is not available.

*Aspiration hazard*

This information is not available.

## 11.2 Further information

Systemic effects:

pain, collapse, Convulsions, cardiovascular disorders

Damage to:

Liver, Kidney

Lethal effect after absorption.

Symptoms may be delayed.

Countermeasurements must be implemented at once.

Other dangerous properties can not be excluded.

This substance should be handled with particular care.

## Components

### *Hydrofluoric acid*

*Acute oral toxicity*

Acute toxicity estimate: 5,1 mg/kg

Expert judgement

*Acute inhalation toxicity*

Acute toxicity estimate: 0,6 mg/l; vapour

Expert judgement

*Acute dermal toxicity*

Acute toxicity estimate : 5,1 mg/kg

Expert judgement



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**SECTION 12. Ecological information**

**Mixture**

**12.1 Toxicity**

No information available.

**12.2 Persistence and degradability**

No information available.

**12.3 Bioaccumulative potential**

No information available.

**12.4 Mobility in soil**

No information available.

**12.5 Results of PBT and vPvB assessment**

**12.6 Other adverse effects**

*Additional ecological information*

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*

No information available.

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**SECTION 13. Disposal considerations**

*Waste treatment methods*

See [www.retrologistik.com](http://www.retrologistik.com) for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

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**SECTION 14. Transport information**

**Land transport (ADR/RID)**

|  |                   |
|--|-------------------|
| <b>14.1 UN number</b>                    | UN 1790           |
| <b>14.2 Proper shipping name</b>         | HYDROFLUORIC ACID |
| <b>14.3 Class</b>                        | 8 (6.1)           |
| <b>14.4 Packing group</b>                | II                |
| <b>14.5 Environmentally hazardous</b>    | --                |
| <b>14.6 Special precautions for user</b> | yes               |
| Tunnel restriction code                  | E                 |

**Inland waterway transport (ADN)**

Not relevant

**Air transport (IATA)**

|                                       |                   |
|---------------------------------------|-------------------|
| <b>14.1 UN number</b>                 | UN 1790           |
| <b>14.2 Proper shipping name</b>      | HYDROFLUORIC ACID |
| <b>14.3 Class</b>                     | 8 (6.1)           |
| <b>14.4 Packing group</b>             | II                |
| <b>14.5 Environmentally hazardous</b> | --                |

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**14.6 Special precautions for user** no

**Sea transport (IMDG)**

**14.1 UN number** UN 1790  
**14.2 Proper shipping name** HYDROFLUORIC ACID NOT MORE THAN 60%  
**14.3 Class** 8 (6.1)  
**14.4 Packing group** II  
**14.5 Environmentally hazardous** --  
**14.6 Special precautions for user** yes  
**EmS** F-A S-B

**14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**  
Not relevant

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**SECTION 15. Regulatory information**

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

*EU regulations*

Major Accident Hazard Legislation 96/82/EC  
Very toxic  
1  
Quantity 1: 5 t  
Quantity 2: 20 t

Occupational restrictions Take note of Dir 94/33/EC on the protection of young people at work.  
  
Observe work restrictions regarding maternity protection in accordance to Dir 92/85/EEC or stricter national regulations where applicable.

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer not regulated

Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC not regulated

Regulation (EC) No 689/2008 concerning the export and import of dangerous chemicals not regulated

Substances of very high concern (SVHC) This product does not contain substances of very high concern according to Regulation (EC) No 1907/2006 (REACH), Article 57 above the respective regulatory concentration limit of  $\geq 0.1\%$  (w/w).

*National legislation*

Storage class 6.1B

**15.2 Chemical Safety Assessment**

For this product a chemical safety assessment was not carried out.

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**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.  
H330 Fatal if inhaled.

**Full text of R-phrases referred to under sections 2 and 3**

R26/27/28 Very toxic by inhalation, in contact with skin and if swallowed.  
R35 Causes severe burns.

**Training advice**

Provide adequate information, instruction and training for operators.

**Labelling**

*Hazard pictograms*



*Signal word*

Danger

*Hazard statements*

H300 + H310 + H330 Fatal if swallowed, in contact with skin or if inhaled  
H314 Causes severe skin burns and eye damage.

*Precautionary statements*

Prevention

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response

P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.



P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position 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.

P308 + P310 IF exposed or concerned: immediately call a POISON CENTER or doctor/ physician.

**Labelling (67/548/EEC or 1999/45/EC)**


|                    |   |   |
|--------------------|---|---|
| <i>Symbol(s)</i>   |  T+<br> C | Very toxic<br>Corrosive   |
| <i>R-phrase(s)</i> | 26/27/28-35   | Very toxic by inhalation, in contact with skin and if swallowed.<br>Causes severe burns.  |
| <i>S-phrase(s)</i> | 7/9-26-36/37-45   | Keep container tightly closed and in a well-ventilated place.<br>In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing and gloves. In case of accident or if you feel unwell, seek medical advice immediately (show the label where |

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**Reduced labelling (≤125 ml)**

Symbol(s)  T+  
C

R-phrases 26/27/28-35

S-phrases 26-36/37-45

possible).

Very toxic

Corrosive

Very toxic by inhalation, in contact with skin and if swallowed. Causes severe burns.

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing and gloves. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

**Key or legend to abbreviations and acronyms used in the safety data sheet**

Used abbreviations and acronyms can be looked up at [www.wikipedia.org](http://www.wikipedia.org).

**Regional representation**

This information is given on the authorised Safety Data Sheet for your country.

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*The information contained herein is based on the present state of our knowledge. It characterises the product with regard to the appropriate safety precautions. It does not represent a guarantee of any properties of the product.*