

Laboratory/work area: **Wet laboratory**

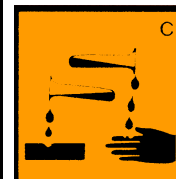
Activity: **Pore etching**



Giftig

Hydrofluoric Acid 48%

Hydrofluoric acid solutions



Ätzend

Dangerous for humans and environment

Acute toxicity

LC₅₀ (inhalation, rat): 1610 ppm(V) /1 h (anhydrous substance).
LCLo (inhalation, human): 50 ppm(V) /30 min (anhydrous substance).

Specific symptoms in animal studies:

Eye irritation test (rabbit): burns.

Skin irritation test (rabbit): burns.

The literature data available to us do not conform with the labelling prescribed by the EC. The EC has dossiers which have not been published.

Subacute to chronic toxicity

The following statements refer to the toxicological chief component of the preparation:

No indication of carcinogenic activity.

Bacterial mutagenicity: Ames test: negative.

No indication of teratogenic properties.

Further toxicological information

Property that must be anticipated on the basis from the components of the preparation:

After inhalation of vapours: strongly corrosive, damage of respiratory tract.

Resultant lesions may affect the following: bronchitis, pneumonia, pulmonary oedema.

After skin contact: burns. Possible damages: necrosis. Tendency of poor wound-healing after penetration of the substance. Danger of skin absorption.

After eye contact: Burns. Risk of blindness!

After swallowing: Burns in oesophagus and stomach. Possible symptoms: strong pain (risk of perforation!), bloody vomiting, spasms.

Systemic effects: collapse. Lethal effect after absorption. Latency time until onset of action.

Countermeasurements must be implemented at once.

Further data

Further hazardous properties cannot be excluded.

This substance should be handled with particular care.

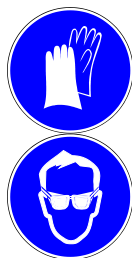
Safeguard and directives

Notes for safe handling:

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

Storage:

Tightly closed. In a well-ventilated place. Protected from light. In plastic containers. Storage temperature: no restrictions. Accessible only for authorized persons.



Personal protective equipment:

Protective clothing should be selected specifically for the working place, depending on concentration and quantity of the hazardous substances handled. The resistance of the protective clothing to chemicals should be ascertained with the respective supplier.

Respiratory protection: required when vapours/aerosols are generated. Filter B (acc. to DIN 3181) for inorganic gases and vapours.

Eye protection: required

Hand protection:

In full contact:

Glove material: butyl rubber
Layer thickness: 0.7 mm
Breakthrough time: > 480 Min.

In splash contact:

Glove material: polychloroprene
Layer thickness: 0.65 mm
Breakthrough time: > 240 Min.

The protective gloves to be used must comply with the specifications of EC directive 89/686/EEC and the resultant standard EN374, for example KCL 898 Butoject® (full contact), 720 Camapren® (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 and supplied by us as well as to the purpose specified by us. 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).

Other protective equipment:

Acid-resistant protective clothing. Rubber boots.

Industrial hygiene:

Immediately change contaminated clothing. Apply skin-protective barrier cream. Wash hands and face after working with substance. Under no circumstances eat or drink at workplace.



Fire department 0 / 112

Behavior in the case of danger



Emergency 0 / 19222



Person-related precautionary measures:

Do not inhale vapours/aerosols. Avoid substance contact. Ensure supply of fresh air in enclosed rooms.

Environmental-protection measures:

Do not allow to enter sewerage system.

Procedures for cleaning / absorption:

Take up carefully with liquid-absorbent material (e.g. Chemizorb®). Forward for disposal. Clean up affected area.

Additional notes:

Render harmless: Treat with a mixture of lime in sodium carbonate solution (precipitation as calcium fluoride).

First assistance

First assistant: (J. Bahr, Tel.: 6183):



Initiate measures immediately!

First aiders should see to their own protection!

After inhalation: Fresh air. Seek medical advice. Keep airways free. In respiratory arrest artificial ventilation.

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 TyloseTM C600 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.

Injured persons should rest and be protected from loss of warmth.

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 action is suspected, monitoring and treatment in an intensive care unit is urgently required. Caution, ventricular fibrillation due to electrolyte imbalance.

Adequate disposal

Dispose remainders, empty bundles as special refuse (contact: Kai Rath).

Signature of the responsible person: