

## 1. PRODUCT AND COMPANY IDENTIFICATION

**PRODUCT NAME:**  
Fluoroboric Acid 50% Solution

**CHEMICAL FORMULA:**  
HBF<sub>4</sub> (Aqueous)

**COMPANY NAME:**

**PELICHEM:** The Chemical Division of NECSA

P O Box 582, Pretoria, 0001, South Africa

Tel: 27 12 305-3396 / Fax: 27 12 305-3728

E-mail: [cheminfo@pelchem.necsa.co.za](mailto:cheminfo@pelchem.necsa.co.za) / Cell: +27 83 628 0831

Emergency tel: +27 12 305-3333/4

## 2. COMPOSITION/INFORMATION ON INGREDIENTS

**CHEMICAL NAME OF SUBSTANCE:**  
Hydrogen Tetrafluoroborate Solution

**SYNONYMS:**  
50% Fluoroboric Acid; 50% Hydrofluoboric Acid; Tetrafluoroboric Acid

**UN No:**  
1775

Ingredients:	CAS-No:	Percentage:
Fluoroboric acid	16872-11-0	50%
Water	7732-18-5	50%

## 3. HAZARDS IDENTIFICATION

**EMERGENCY OVERVIEW**

Corrosive. May cause kidney damage. Contact with liquid is corrosive to the eyes, skin, gastrointestinal and respiratory tract and causes severe burns.

## 4. FIRST AID MEASURES

**INHALATION:**

Remove from exposure, lie down. Consult a doctor. Oxygen or artificial respiration if needed. DO NOT use mouth-to-mouth respiration.

**SKIN CONTACT:**

Take all contaminated clothing off immediately. Immediately wash off with plenty of water. Consult a doctor.

**EYE CONTACT:**

Rinse thoroughly with plenty of water for at least 15 minutes and consult a doctor. Keep eyes wide open while rinsing.

**INGESTION:**

If victim is conscious and alert give either water or milk. Do not induce vomiting. Call a doctor immediately

**PROTECTION FOR FIRST AIDERS:**

Ensure adequate ventilation. Wear suitable protective clothing.

**GENERAL ADVICE:**

Remove from exposure, lie down. Show this safety data sheet to the doctor in attendance.

## 5. FIRE-FIGHTING MEASURES

Non-flammable

**SPECIFIC FIRE-FIGHTING HAZARDS:**

Heating can release hazardous gases.

**PROTECTION FOR FIRE FIGHTERS:**

In case of fire, wear a self-contained breathing apparatus and full protective flameproof clothing.

## 6. ACCIDENTAL RELEASE MEASURES

**PERSONAL PRECAUTIONS:**

Ensure adequate ventilation. Use personal protective equipment. Keep people away from and upwind of spill / leak.

**METHODS FOR CLEANING UP:**

Absorb with inert absorbent material.

**ENVIRONMENTAL PRECAUTIONS:**

Do not allow material to contaminate ground water system. Prevent product from entering drains.

## 7. HANDLING AND STORAGE

**TECHNICAL MEASURES AND PRECAUTIONS:**

Use only in area provided with appropriate exhaust ventilation.

**HANDLING AND OPEN STORAGE CONDITIONS:**

Keep containers tightly closed in a dry, well-ventilated place.

**SAFE HANDLING ADVICE:**

Wear personal protective equipment. Do not breathe vapors or spray mist. Avoid contact with skin and eyes.

**PACKAGING MATERIAL:**

200 liter or 25 liter polyethylene cans.

**INCOMPATIBLE PRODUCTS:**

Caustics

## 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

**ENGINEERING MEASURES TO REDUCE EXPOSURE:****CONTROL PARAMETERS:**

OSHA PEL 8H 2.5mg/m<sup>3</sup> (Fluoride).

Ensure adequate ventilation, especially in confined areas.

**RESPIRATORY PROTECTION:**

Respirator with combination filter for vapour / particulate. In case of higher concentration, wear a positive-pressure, supplied-air respirator.

**EYE PROTECTION:**

Tightly fitting safety goggles. Face shield.

**SKIN AND BODY PROTECTION:**

Chemical splash suit protecting against chemicals.

**HYGIENE MEASURES:**

Remove and wash contaminated clothing before re-use. Wash hands before breaks and at the end of a workday. When using do not eat, drink or smoke.

**HAND PROTECTION:**

Rubber or plastic gloves.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**FORM:**

Liquid.

**COLOR:**

Colourless.

**DENSITY:**

50% HBF<sub>4</sub>: 1400kg/m<sup>3</sup> at 20°C

50% HBF<sub>4</sub>: 1440kg/m<sup>3</sup> at 0°C

**ODOR:**

Pungent.

**MOLECULAR WEIGHT:**

87.81

**VAPOR PRESSURE:**

7.0mm Hg @ 20°C

**BOILING POINT:**

130°C

**RELATIVE DENSITY:**

1.36

**TEMPERATURE:**

No data available.

**SOLUBILITY:**

Water solubility.  
Completely soluble.

pH: <1

**VAPOR DENSITY:**

3.0 (air=1)

**OTHER DATA:**

Colourless solution miscible with water in any ration to produce a strong acid.

## 10. STABILITY AND REACTIVITY

**STABILITY:**

Stable at normal conditions.

**CONDITIONS TO AVOID:**

Above 130°C product starts to decompose generating hazardous fumes.

**HAZARDOUS DECOMPOSITION PRODUCTS:**

Hydrogen fluoride.

**MATERIALS TO AVOID:**

Bases, metals, halogenated organics, ketones, aldehydes, boron halides, alkali earth metals and alkali metals.

## 11. TOXICOLOGICAL INFORMATION

**ACUTE TOXICITY:**

LD50/Rat/Oral 100mg/kg

## LOCAL EFFECTS:

The product causes burns to eyes, skin and mucous membrane. Ingestion may cause gastro-intestinal irritation, nausea, vomiting and/or diarrhoea. May damage kidneys after chronic exposure and cause anaemia (low blood count).

## 12. ECOLOGICAL INFORMATION:

### MOBILITY

No data available.

### PERSISTENCE/DEGRADABILITY

No data available.

### BIOACCUMULATION

No data available.

### ECOTOXICITY:

No data available.

## 13. DISPOSAL CONSIDERATIONS

### SAFE AND PREFERRED DISPOSAL METHODS:

Contact manufacturer.

### CONTAMINATED PACKAGING:

Contact manufacturer.

## 14. TRANSPORT INFORMATION

### UN NO:

1775

### EMERGENCY ACTION CODE:

2X

### ADR/RID:

Class: 8

### TREM-CARD #: 732

Item: 8b

### Proper shipping name:

Fluoroboric Acid

### IMO:

Class: 8

IMO-Labels: Corrosive

### Proper shipping name:

Fluoroboric Acid

Packaging group: II

### IATA:

Packaging group: II

Class: 8

Labels: Corrosive

### Proper shipping name:

Fluoroboric Acid

## 15. REGULATORY INFORMATION

### APPLICABLE REGULATIONS:

Refer to country of destination.

### SAFETY AND RISK PHRASES:

According to (National equivalent of EC-Dir.67/548), as amended, the product is labelled as follows:

According to National equivalent of EC-Dir.67/548, as amended, the product is labelled as follows:

- C** : Corrosive.
- R34** : Causes burns.
- S45** : In case of accident or if you feel unwell, seek immediate medical advice.
- S26** : In case of contact with eyes, rinse immediately with plenty of water and seek medical advise.
- S27** : Take off immediately all contaminated clothing.

## 16. OTHER INFORMATION

### RECOMMENDED USE:

1. Electropolishing of aluminium.
2. Reactive acid in tin plating baths.
3. Manufacture of various Fluoroborate salts.
4. Electrolyte adjustment for Fluoroborate plating solutions.
5. Etching agent for printed circuit boards.
6. Organic synthesis.

### REFERENCES:

1. (CED) Chemical Exchange Directory S.A., Geneva, Switzerland.
2. Unpublished Reports, AEC of SA Ltd, Pelindaba, South Africa, 1993.

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