

# HYDROGEN FLUORIDE

**0283**  
April 2000

**CAS No: 7664-39-3**  
RTECS No: MW7875000  
UN No: 1052  
EC No: 009-002-00-6

Hydrofluoric acid, anhydrous  
(cylinder)  
HF  
Molecular mass: 20.0

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/SYMPTOMS	PREVENTION	FIRST AID/FIRE FIGHTING
<b>FIRE</b>	Not combustible. Many reactions may cause fire or explosion.		In case of fire in the surroundings: use appropriate extinguishing media.
<b>EXPLOSION</b>			In case of fire: keep cylinder cool by spraying with water but NO direct contact with water. Combat fire from a sheltered position.
<b>EXPOSURE</b>		<b>AVOID ALL CONTACT!</b>	<b>IN ALL CASES CONSULT A DOCTOR!</b>
<b>Inhalation</b>	Burning sensation. Cough. Dizziness. Headache. Laboured breathing. Nausea. Shortness of breath. Sore throat. Vomiting. Symptoms may be delayed (see Notes).	Ventilation, local exhaust, or breathing protection.	Fresh air, rest. Half-upright position. Refer for medical attention.
<b>Skin</b>	<b>MAY BE ABSORBED!</b> Redness. Pain. Serious skin burns. Blisters. (See Inhalation).	Protective gloves. Protective clothing.	Remove contaminated clothes. Rinse skin with plenty of water or shower. Refer for medical attention.
<b>Eyes</b>	Redness. Pain. Severe deep burns.	Face shield or eye protection in combination with breathing protection.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
<b>Ingestion</b>	Abdominal pain. Burning sensation. Diarrhoea. Nausea. Vomiting. Weakness. Collapse.	Do not eat, drink, or smoke during work. Wash hands before eating.	Rinse mouth. Do NOT induce vomiting. Refer for medical attention.

SPILLAGE DISPOSAL	PACKAGING & LABELLING
Evacuate danger area! Consult an expert! Ventilation. Remove vapour with fine water spray. Gas-tight chemical protection suit including self-contained breathing apparatus.	T+ Symbol C Symbol R: 26/27/28-35 S: (1/2-)7/9-26-36/37/39-45 UN Hazard Class: 8 UN Subsidiary Risks: 6.1 UN Pack Group: I
	Do not transport with food and feedstuffs.

EMERGENCY RESPONSE	SAFE STORAGE
Transport Emergency Card: TEC (R)-80S1052 or 80GCT1-I NFPA Code: H 3; F 0; R 2	Fireproof. Separated from food and feedstuffs. See Chemical Dangers. Cool. Keep in a well-ventilated room.

## IMPORTANT DATA

**Physical State; Appearance**

COLOURLESS GAS OR COLOURLESS FUMING LIQUID, WITH PUNGENT ODOUR.

**Chemical dangers**

The substance is a strong acid, it reacts violently with bases and is corrosive. Reacts violently with many compounds causing fire and explosion hazard. Attacks metal, glass, some forms of plastic, rubber and coatings.

**Occupational exposure limits**

TLV: (as F) 0.5 ppm as TWA, 2 ppm (Ceiling value); BEI issued; (ACGIH 2005).

MAK: 1 ppm, 0.83 mg/m<sup>3</sup>; Peak limitation category: I(2);

Pregnancy risk group: C;

MAK: BAT 7 mg/g creatinine; (DFG 2005).

**Routes of exposure**

The substance can be absorbed into the body by inhalation, through the skin and by ingestion.

**Inhalation risk**

A harmful concentration of this gas in the air will be reached very quickly on loss of containment.

**Effects of short-term exposure**

The substance is corrosive to the eyes, the skin and the respiratory tract. Inhalation of this gas or vapour may cause lung oedema (see Notes). The substance may cause hypocalcemia. Exposure above the OEL may result in death. The effects may be delayed. Medical observation is indicated.

**Effects of long-term or repeated exposure**

The substance may cause fluorosis.

## PHYSICAL PROPERTIES

Boiling point: 20/C

Melting point: -83/C

Relative density (water = 1): 1.0 as liquid at 4/C

Solubility in water: very good

Vapour pressure, kPa at 25/C: 122

Relative vapour density (air = 1): 0.7

## ENVIRONMENTAL DATA

## NOTES

The occupational exposure limit value should not be exceeded during any part of the working exposure.

The symptoms of lung oedema often do not become manifest until a few hours have passed and they are aggravated by physical effort. Rest and medical observation are therefore essential.

Immediate administration of an appropriate inhalation therapy by a doctor or a person authorized by him/her, should be considered.

Turn leaking cylinder with the leak up to prevent escape of gas in liquid state.

Depending on the degree of exposure, periodic medical examination is suggested.

UN number for hydrogen fluoride in aqueous solution: 1790, hazard class 8, subsidiary hazard 6.1, pack group I (>60%).

Card has been partly updated in April 2005. See sections Occupational Exposure Limits, Emergency Response.

## ADDITIONAL INFORMATION

## LEGAL NOTICE

Neither the EC nor the IPCS nor any person acting on behalf of the EC or the IPCS is responsible for the use which might be made of this information