

The National Institute for Occupational Safety and Health (NIOSH)



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Hydrogen fluoride

SYNONYMS & TRADE NAMES					
Anhydrous hydrogen fluoride, Aqueous hydrogen fluoride, HF-A, Hydrofluoric acid					
CAS NO.		RTECS NO.		DOT ID & GUIDE	
7664-39-3		MW7875000		1052 125(anhydrous) 1790 157(solution)	
FORMULA		CONVERSION		IDLH	
HF		1 ppm = 0.82 mg/m³		30 ppm See: 7664393	
EXPOSURE LIMITS			MEASUREMENT METHODS		
NIOSH REL TWA 3 ppm (2.5 mg/m³) C 6 ppm (5 mg/m³) [15-minute] OSHA PEL TWA 3 ppm See Appendix G			NIOSH 3800 , 7902 , 7903 , 7906; OSHA ID110 See: NMAM or OSHA Methods		
PHYSICAL DESCRIPTION					
Colorless gas or fuming liquid (below 67°F) with a strong, irritating odor. [Note: Shipped in cylinders.]					
MOLECULAR WEIGHT	BOILING POINT	FREEZING POINT	SOLUBILITY	VAPOR PRESSURE	IONIZATION POTENTIAL
20.0	67°F	-118°F	Miscible	783 mmHg	15.98 eV
SPECIFIC GRAVITY	FLASH POINT	UPPER EXPLOSIVE LIMIT	LOWER EXPLOSIVE LIMIT	RELATIVE GAS DENSITY	
1.00 (Liquid at 67°F)	NA	NA	NA	0.69	
Nonflammable Gas					

INCOMPATIBILITIES & REACTIVITIES

Metals, water or steam [Note: Corrosive to metals. Will attack glass and concrete.]

EXPOSURE ROUTES

inhalation, skin absorption (liquid), ingestion (solution), skin and/or eye contact

SYMPTOMS

irritation eyes, skin, nose, throat; pulmonary edema; eye, skin burns; rhinitis; bronchitis; bone changes

TARGET ORGANS

Eyes, skin, respiratory system, bones

PERSONAL PROTECTION/SANITATION

([See protection codes](#))

Skin:Prevent skin contact (liquid)

Eyes:Prevent eye contact (liquid)

Wash skin:When contaminated (liquid)

Remove:When wet or contaminated (liquid)

Change:No recommendation

Provide:Eyewash (liquid), Quick drench (liquid)

FIRST AID

([See procedures](#))

Eye:Irrigate immediately (solution/liquid)

Skin:Water flush immediately (solution/liquid)

Breathing:Respiratory support

Swallow:Medical attention immediately (solution)

RESPIRATOR RECOMMENDATIONS

NIOSH/OSHA

Up to 30 ppm:

(APF = 10) Any chemical cartridge respirator with cartridge(s) providing protection against the compound of concern*

(APF = 25) Any powered, air-purifying respirator with cartridge(s) providing protection against the compound of concern*

(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted canister providing protection against the compound of concern

(APF = 10) Any supplied-air respirator*

(APF = 50) Any self-contained breathing apparatus with a full facepiece

Emergency or planned entry into unknown concentrations or IDLH conditions:

(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode

(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus

Escape:

(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted canister providing protection against the compound of concern

Any appropriate escape-type, self-contained breathing apparatus

[Important additional information about respirator selection](#)

SEE ALSO

[INTRODUCTION](#) ICSC CARD: [0283](#) MEDICAL TESTS: [0118](#)

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