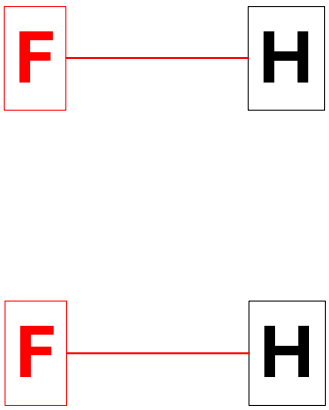
Chemical of the Week – Part 2

Hazard Profile	
Chemical Name and Pseudonyms	Hydrogen fluoride (anhydrous), Fluorane, HF
UN Number	1052
Chemical Formula	F_2H_2
Hazards	Toxic, corrosive
NFPA Hazard Class (H-F-R-O)	4 – 0 – 1 –
PPE Considerations	CPC
Fire Fighting Considerations	Use an extinguishing agent suitable for the surrounding fire.
Decontamination	Ventilation, flushing water, hybrid
Detection and Monitoring	Colorimetric, electrochemical sensor
Chemical and Physical Properties	
Physical State	A colorless fuming liquid that boils at 67°F
Vapor Pressure	783 mm/Hg
Boiling Point	67°F
Vapor Density	.69
Specific Gravity	1
Miscibility	Miscible
Flash Point	-
LEL/UEL	- / -%
Autoignition Temp	-
pH	1 – 3 when in solution
Toxicity	
IDLH	30 ppm
LC50	1276 ppm
LD50	-
AEGL1/AEGL 2/AEGL (10 Min)	1/95/170 ppm
Emergency Response Planning Guide (ERPG) 1/2/3	2 / 20 / 50 ppm
Protective Action Criteria (PAC) 1/2/3	1 / 24 / 44 ppm
PEL/REL/STEL	3 / 3 / - ppm
Radioactive (Yes/No)	No
Medical	
Toxicological Considerations	Toxic inhalation by all routes
Signs/Symptoms of Exposure	Respiratory/skin/eye irritation, CNS s/s, headache, confusion, nausea & vomiting , cardiac dysthymias
Medical Treatment	Fresh air, water flush, treat symptomatically, toxidrome treatment

Other Information
HYDROGEN FLUORIDE, ANHYDROUS attacks glass and any other silica containing material. May react with common metals to generate flammable hydrogen gas. Reacts exothermically with bases. Can initiate polymerization in alkenes. Reacts with cyanide salts and compounds to release gaseous hydrogen cyanide. May generate flammable and/or toxic gases with dithiocarbamates, isocyanates, mercaptans, nitrides, nitriles, sulfides. Additional gas-generating reactions may occur with sulfites, nitrites, thiosulfates dithionites, and carbonates. Can increase the rate of chemical reactions. Reacts explosively with cyanogen fluoride, methanesulfonic acid or glycerol mixed with nitric acid. Reacts violently with arsenic trioxide, phosphorus pentachloride, acetic anhydride, alkali metals, ammonium hydroxide, chlorosulfonic acid, ethylenediamine, fluorine, potassium permanganate, oleum, propylene oxide, vinyl acetate, mercury(II) oxide. Emits highly corrosive fumes of hydrogen fluoride gas when heated. Contact with many silicon compounds and metal silicides causes violent evolution of gaseous silicon tetrafluoride.
Chemical Structure