

FLUOBORIC ACID

Chemical Datasheet

Chemical Identifiers | Hazards | Response Recommendations | Physical Properties | Regulatory Information | Alternate Chemical Names

Chemical Identifiers

NFPA 704

General Description

A colorless odorless poisonous liquid. Boiling point 130°C. Corrosive to metals and tissue. It is used in electroplating, metal cleaning and making diazo salts.

Hazards

Reactivity Alerts

Air & Water Reactions

Soluble in water with release of heat.

Fire Hazard

Excerpt from [GUIDE 154](#) [Substances - Toxic and/or Corrosive (Non-Combustible)]:

Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes. Some are oxidizers and may ignite combustibles (wood, paper, oil, clothing, etc.). Contact with metals may evolve flammable hydrogen gas. Containers may explode when heated. For UN3171, if Lithium ion batteries are involved, also consult [GUIDE 147](#). (ERG, 2012)

Health Hazard

Excerpt from [GUIDE 154](#) [Substances - Toxic and/or Corrosive (Non-Combustible)]:

TOXIC; inhalation, ingestion or skin contact with material may cause severe injury or

death. Contact with molten substance may cause severe burns to skin and eyes. Avoid any skin contact. Effects of contact or inhalation may be delayed. Fire may produce irritating, corrosive and/or toxic gases. Runoff from fire control or dilution water may be corrosive and/or toxic and cause pollution. (ERG, 2012)

Reactivity Profile

FLUOBORIC ACID is a strong acid. Reacts exothermically with chemical bases (examples: amines, amides, and inorganic hydroxides). These reactions can generate dangerously large amounts of heat in small spaces. Dissolution in water or the dilution of a concentrated aqueous solution may generate significant heat. Reacts with active metals, including such structural metals as aluminum and iron, to release hydrogen, a flammable gas. Can initiate the polymerization of certain alkenes. Reacts with cyanide compounds to release gaseous hydrogen cyanide. Generates flammable and/or toxic gases in contact with dithiocarbamates, isocyanates, mercaptans, nitrides, nitriles, sulfides, and strong reducing agents. Additional gas-generating reactions occur with sulfites, nitrites, thiosulfates (to give H₂S and SO₃), dithionites (SO₂), and carbonates. May catalyze (increase the rate of) chemical reactions. Attempted drying of the acid with acetic anhydride caused an explosion at 0°C [J. Organomet. Chem., 1975, 94, 319].

Belongs to the Following Reactive Group(s)

Potentially Incompatible Absorbents

No information available.

Response Recommendations

Isolation and Evacuation

Excerpt from [GUIDE 154](#) [Substances - Toxic and/or Corrosive (Non-Combustible)]:

As an immediate precautionary measure, isolate spill or leak area in all directions for at least 50 meters (150 feet) for liquids and at least 25 meters (75 feet) for solids.

SPILL: Increase, in the downwind direction, as necessary, the isolation distance shown above.

FIRE: If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions. (ERG, 2012)

Firefighting

Excerpt from [GUIDE 154](#) [Substances - Toxic and/or Corrosive (Non-Combustible)]:

SMALL FIRE: Dry chemical, CO₂ or water spray.

LARGE FIRE: Dry chemical, CO₂, alcohol-resistant foam or water spray. Move containers from fire area if you can do it without risk. Dike fire-control water for later disposal; do not scatter the material.

FIRE INVOLVING TANKS OR CAR/TRAILER LOADS: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Do not get water inside containers. Cool containers with flooding quantities of water until well after fire is out. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. ALWAYS stay away from tanks engulfed in fire. (ERG, 2012)

Non-Fire Response

Excerpt from [GUIDE 154](#) [Substances - Toxic and/or Corrosive (Non-Combustible)]:

ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Stop leak if you can do it without risk. Prevent entry into waterways, sewers, basements or confined areas. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. DO NOT GET WATER INSIDE CONTAINERS. (ERG, 2012)

Protective Clothing

Excerpt from [GUIDE 154](#) [Substances - Toxic and/or Corrosive (Non-Combustible)]:

Wear positive pressure self-contained breathing apparatus (SCBA). Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection. Structural firefighters' protective clothing provides limit-

ed protection in fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible. (ERG, 2012)

DuPont Tychem® Suit Fabrics

Normalized Breakthrough Times (in Minutes)

Chemical	CAS Number	State	QC	SL	TF	TP	C3	BR	LV	RC	TK	RF
Fluoroboric acid (48-50%)	16872-11-0	Liquid		>480			>480			>480		

> indicates greater than.

A blank cell indicates the fabric has not been tested. The fabric may or may not offer barrier.

Special Warnings from DuPont

1. Serged and bound seams are degraded by some hazardous liquid chemicals, such as strong acids, and should not be worn when these chemicals are present.
2. CAUTION: This information is based upon technical data that DuPont believes to be reliable. It is subject to revision as additional knowledge and experience are gained. DuPont makes no guarantee of results and assumes no obligation or liability...

(DuPont, 2013)

First Aid

Excerpt from [GUIDE 154](#) [Substances - Toxic and/or Corrosive (Non-Combustible)]:

Move victim to fresh air. Call 911 or emergency medical service. Give artificial respiration if victim is not breathing. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Administer oxygen if breathing is difficult. Remove and isolate contaminated clothing and shoes. In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes. For minor skin contact, avoid spreading material on unaffected skin. Keep victim warm and quiet. Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. (ERG, 2012)

Physical Properties

Flash Point: data unavailable

Lower Explosive Limit (LEL): data unavailable

Upper Explosive Limit (UEL): data unavailable

Autoignition Temperature: data unavailable

Melting Point: data unavailable

Vapor Pressure: data unavailable

Vapor Density (Relative to Air): data unavailable

Specific Gravity: data unavailable

Boiling Point: data unavailable

Molecular Weight: data unavailable

Water Solubility: data unavailable

IDLH: data unavailable

AEGLs (Acute Exposure Guideline Levels)

No AEGL information available.

ERPGs (Emergency Response Planning Guidelines)

No ERPG information available.

PACs (Protective Action Criteria)

Chemical	PAC-1	PAC-2	PAC-3
Fluoboric acid; (Tetrafluoroboric acid) (16872-11-0)	8.7 mg/m ³	97 mg/m ³	580 mg/m ³

(SCAPA, 2012)

Regulatory Information

No regulatory information available.

Alternate Chemical Names