

FLUORINE FACT SHEET

North Carolina Division of Public Health • Occupational and Environmental Epidemiology Branch

Chemical Information

- Fluorine is a naturally-occurring, pale yellow-green gas.
- Has a pungent, irritating odor.
- Is toxic at high levels of exposure.
- Products of fluorine reactions (fluorides and hydrofluoric acid) are widely used in etching glass, making steel, ceramics, lubricant, dyes, plastics, and pesticides.

Regulatory Standards

- The Occupational Safety & Health Administration (OSHA) set the PEL for fluorine exposures in the workplace at 0.2 mg/m³ calculated as an 8-hour time-weighted average.

Hazards Identification

Acute Exposure:

- Can result in extreme nasal and eye irritation.
- Can result in pulmonary edema with high levels of exposure.

Chronic Exposure:

- Chronic exposure is not generally observed because fluorine rapidly hydrolyzes to hydrogen fluoride and oxygen, thus fluorine does not persist in the environment for extended periods of time.

Stability & Reactivity

- Reacts with water to form hydrofluoric acid.
- Violently reacts with all combustible materials.
- Reacts with sulfur, selenium, and tellurium to combust and form halides.

Handling & Storage

- Store in cool, dry, well-ventilated location.
- Storage within an outdoor, separated unit is preferred.

Glossary

PEL - The Occupational Health and Safety Administration defines Permissible Exposure Levels (PELs) as threshold levels for the workplace that are applicable to exposure periods of eight hours.

Time weighted average (TWA) - The maximum average exposure to a hazardous contaminant to which workers may be exposed without experiencing significant adverse health effects over said period.

