

Fluoride Safety

NDEE

2023 Fluoride Seminar
Columbus

Goals

- Prevent “over feeding” of fluoride.
- Protect worker during handling of fluoride chemicals – usage and storage of chemicals.
- Protect the environment with respect to spillage and disposal.

Overfeed

- Protection is built into installations by proper design.
- Monitoring of fluoride levels in the water system.
- Maintenance of equipment.

Worker Protection

- Sodium Fluoride

Dust – most frequently encountered hazard. Use of crystalline form keeps dust to a minimum.

Hazardous if swallowed or inhaled in large quantities.

Worker Protection

- Sodium fluoride protective safety gear.

Approved, high efficiency dust respirator (chemical mask).

Gauntlet neoprene gloves.

Heavy duty neoprene apron.

Worker Protection

- Sodium Fluorosilicate

Crystalline form – when in saturated solution are on the acid side;

pH = 3 – 4.

Dust – primary handling hazard.

Worker Protection

- Sodium fluorosilicate protective safety gear.

Approved, high efficiency dust respirator (chemical mask).

Gauntlet neoprene gloves.

Heavy duty neoprene apron.

Worker Protection

- Fluorosilicic Acid

Acid – pH = 1.2 @ 20 to 35% solutions.

Must be handled with care to prevent injury to personnel and damage to equipment.

Recommend against diluting – precipitate formation and accuracy problems.

Worker Protection

- Fluorosilicic acid protective safety gear.

Gauntlet neoprene gloves.

Heavy duty neoprene apron.

Full face shield or acid proof safety goggles.

Safety shower and eye wash easily accessible.



Chemical Storage and Handling

- Dry chemicals

Tendency to cake or compact when exposed to moisture or when bags are stacked too high.

Store on pallets and stacked no more than 6 bags high.

Chemical Storage and Handling

- Dry Chemicals

Keep drums sealed and protect bags and drums from moisture.

Storage area should be clean and well ventilated.

Exercise care when filling feed equipment.



Fluorosilicic Acid

- Acid

Vapors are corrosive; will etch glass.

Containers must be kept tightly closed and ventilated to outdoors.

Containers made of polyethylene, rubber coated steel or other appropriate material.

Fluorosilicic Acid

- Acid

Well ventilated storage area away from switches, contacts and control panels.

Protect from hot sun and winter freezing.
At 30% strength, freezes at
4° F.

Disposal and Spillage

- Disposal

Rinse all empty containers repeatedly with water to remove all traces of chemical and dispose of in a proper manner.



Summary

- Follow the appropriate standards and/or regulations for safe use, storage and disposal of chemicals.
- Use proper signage to identify chemicals being stored.
- Keep the MSDS literature handy.