**Ammonium Fluoride**

**Process:**
Highly toxic mixture for etching Silicon Oxide with high selectivity to photoresist.

**Materials:**
Ammonium Fluoride and water for dilution, typically premixed.

**Incompatible Materials:**
Will slowly dissolve glassware. Mixing with acids will cause toxic HF outgassing.

**Hazards:**
*Poor warning properties*: harmful exposure and workstation contamination are initially very difficult to detect. It’s also highly toxic and acutely harmful to nerves/bones. Ammonium Fluoride numbs the skin, so burns are typically not apparent until a day later. Watch very carefully for splashes because this anesthetic effect will prevent you from feeling the burn and reacting appropriately.

**Exposure Actions:** Do what’s below, and then notify NCNC staff within a few hours. For advice, call NCNC Staff.
**Eyes:** Hold eyes open in running eyewash station for 15 minutes and call 911 as soon as possible.
**Skin:** Remove splashed clothing, wash for 3 minutes, apply Calcium Gluconate gel and call 911.

**Personal Protective Equipment:**
Goggles, face shield, heavy chemical gloves (blue disposable Nitridex), and heavy chemical apron. Ammonium Fluoride leaves persistent residues, so rinse gloves often. Keep Calcium Gluconate gel handy.

**Acceptable Locations For Use:**
Wet process stations 2, 3, 11, acid & base fume hood. If heated only acid & base fume hood.

**Additional Process Notes:**
If dilution is needed measure water, add Ammonium Fluoride, then stir. Room temperature Ammonium Fluoride does not pose a vapor hazard. It’s very rare to heat Ammonium Fluoride, though if you do expect fume hazard to approach that of room temperature HF. Ammonium Fluoride is transparent when wet so be sure to rinse your work station after use. Its residues form toxic, white crystals when dry that can persist for years. Ammonium Fluoride’s pH reads just barely above 7, turning NCNC provided pH strips a light yellow-green. This pH is slightly higher than NCNC’s DI or tap water.

**Disposal:**
If heated allow to cool, then decant or aspirate to neutralizer. If the solution contains heavy metals or organics, dispose of the solution in the spent “Fluorides” bottle instead.