

Hydrochloric Acid

Process:

Hydrochloric acid for metal etches and some cleaning solutions.

Materials:

Hydrochloric Acid (40%), sometimes diluted with water.

Incompatible Materials:

Be cautious of splattering due to heating and H₂ formation when etching metals or combustibles.

Personal Protective Equipment:

Goggles, face shield, heavy chemical gloves (blue disposable Nitridex)¹, and heavy chemical apron.

Hazards:

Destructive on contact with human tissues. Though typically apparent immediately, burns may take many minutes to become apparent. Harmful Hydrogen Chloride fumes will erupt from bottles and baths as occasionally indicated by a fine white mist. If your nose tingles from inhaled Hydrochloric Acid, you will no longer be able to smell the fumes and should leave the area. Hydrochloric acid vapors cannot ignite unlike the vapors of Acetic Acid or Ammonium Hydroxide.

Exposure Actions: Do what's below, and then notify CNM2 staff within a few hours. For advice, call CNM2 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 15 minutes and seek medical aid if irritation persists.

Acceptable Locations For Use:

Wet process stations 2, 3, 8, 9, 11, 12, 13, acid & base fume hood². If hotter than a simmer, only acid & base fume hood.

Additional Process Notes:

If dilution is needed measure water, add Hydrochloric acid, then stir³. Heat only after mixing is complete if greater than ambient temperature is desired⁴. Beware fumes when heating. Hydrochloric acid is transparent so be sure to rinse your work station after use². Hydrochloric acid is occasionally used around bases such as in the RCA process, where it becomes important to note that most Hydrochloric Acid residues only last a few hours in cleanroom conditions.

Disposal:

Allow to cool, then decant or aspirate to neutralizer. Heavy metal bearing solutions should instead be disposed of in the "Ordinary Acids" bottle⁵.

*Additional SOPs available, see: 1. PPE Choice and Cleaning
5. Haz Waste Management

2. Work Station Cleaning

3. Pouring and Mixing

4. Hotplates