

Potassium Hydroxide

Process:

Potassium Hydroxide for silicon anisotropic wet etches, cleaning solutions and others.

Materials:

Potassium Hydroxide (45% wt), sometimes diluted with water or Isopropanol.

Incompatible Materials:

Be cautious of splattering due to heating if etching bulk metals or combustibles. Potassium Hydroxide will very slowly etch glassware so Teflon and Polypropylene labware is preferred, though glassware is still acceptable if circumstances demand it.

Hazards:

Destructive on contact with all human tissues. Burns take many minutes or hours to become apparent. When etching (particularly Silicon) produces Hydrogen gas bubbles, which are flammable and sometimes explosive immediately above the bath. Leaves hazardous residues in the form of white crystals, which can persist for years. Potassium Hydroxide does not create a vapor hazard, even when heated. However if it's vigorously boiled it can entrain Potassium Hydroxide in the steam, which creates an enormous vapor and residue hazard.

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 15 minutes and seek medical aid if irritation persists.

Personal Protective Equipment:

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

Acceptable Locations For Use:

Wet process station 4, 10 and acid & base fume hood². Baths hotter than 60C in one of the dedicated 'KOH' baths or in the acid & base fume hood.

Additional Process Notes:

Measure water if necessary and slowly add Potassium Hydroxide to water, then stir³. Heat only after mixing is complete if greater than ambient temperature is desired⁴. Potassium Hydroxide is transparent when wet and leaves persistent solid residues, so be diligent when cleaning work station².

Disposal:

Allow to cool, then decant or aspirate to neutralizer. Heavy metal bearing solutions or bulk organics should instead be disposed of in the "Ordinary Alkalines" bottle located in the spent process fluid collection area⁵.