Typical Solvent Clean SOP

It is very common and often recommended to clean substrates/devices prior to inspection, bonding, functionalization, or other process steps. (Especially for glass and silicon-based work) This is important for minimizing contamination, as well as providing smooth flat surfaces for bonding.

A common technique is to rinse the substrate with a few solvents in series, specifically:

1. Acetone
2. Isopropyl Alcohol (IPA)
3. Water (Optional)

Each of these solvents serves a different purpose. Acetone is a very strong solvent that will quickly dissolve oils and other non-desirables, however it evaporates very quickly and leaves a residue. IPA displaces the acetone (better than water) and leaves minimal residue. Water displaces the IPA and evaporates slowly at standard conditions, giving you time to dry your sample without the formation of water spots.

PPE REQUIREMENTS

- All solvent cleaning should be performed in a fume hood with adequate space to work comfortably.
- Wear gloves, safety goggles, and a lab coat.
- Use an appropriate holder for your sample, such as wafer tweezers. For small samples, or other difficult-to-hold samples (such as spheres) consider using multiple solvent baths, rather than rinses.

Procedure

- Obtain a glass beaker or crystalizing dish that is large enough to rinse into.
- Line up your desired solvent bottles. (acetone, IPA, water)
- Hold your sample over your container and rinse thoroughly with acetone.
- Immediately repeat with IPA and then water. Try not to let your sample dry out in between rinses.
- Blow-dry your sample with compressed nitrogen or clean dry air (CDA). For wafers or glass slides, it helps to do this against a paper towel or cleanroom wipe. For other samples, make sure you have a good grip and always blow away from yourself and into the fume hood.
- Empty your solvent waste into an appropriate waste container.
- Restore the fume hood to its original state with the light off and the sash closed.

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Last update: **2023/01/18 23:15**