

Cleaning glassware:

| Chemical                     | Suitable for | Comments  |
|------------------------------|--------------|---|
| Water/soap/<br>brush/acetone | Normal use   | <ul style="list-style-type: none"> <li>◦ If simple rinse is not sufficient, try:</li> <li>◦ Degrease your glassware's ground glass joints by wiping them with a paper towel soaked in a small amount of ether, acetone or other solvent</li> <li>◦ Place the glassware in a warm concentrated aqueous solution of Alconox, or other detergent, and let sit for several minutes.</li> <li>◦ Scrub.</li> <li>◦ Rinse w/ tap water followed by DI water rinse.</li> <li>◦ Acetone if needed. Air dry.</li> </ul> |
| HCl                          | Intensive    | <ul style="list-style-type: none"> <li>◦ Start with 1M, go up to 6M if needed.</li> <li>◦ Great for metal-containing compound (ie. White powder coating flask)</li> <li>◦ Rinse many times with tap water.</li> <li>◦ DI water rinse, acetone, air dry.</li> </ul>  |
| Base bath                    | Intensive    | <ul style="list-style-type: none"> <li>◦ Great for organic residue.</li> <li>◦ No metal-containing compounds.</li> <li>◦ No fritted funnels, cuvettes, volumetric glassware</li> <li>◦ Remember to retrieve it in a timely manner (~ 1 wk)</li> <li>◦ Rinse many times with tap water.</li> <li>◦ DI water rinse, acetone, air dry.</li> </ul>  |
| Aqua Regia                   | Aggressive   | <ul style="list-style-type: none"> <li>◦ 1:3 HNO<sub>3</sub>: HCl. 1:3:1 HNO<sub>3</sub>:HCl:H<sub>2</sub>O if for storage.</li> <li>◦ Will dissolve gold and oxidize everything else.</li> <li>◦ Fumes, releases toxic Cl<sub>2</sub>, NOCl or NO.</li> <li>◦ Cannot be store for long term.</li> <li>◦ Rinse with lots of water afterwards.</li> </ul>  |
| Acidic peroxide solution     | Aggressive   | <ul style="list-style-type: none"> <li>◦ 1:1 H<sub>2</sub>SO<sub>4</sub>: 3% H<sub>2</sub>O<sub>2</sub> (don't exceed 10%).</li> <li>◦ Add peroxide into acid.</li> <li>◦ Strong oxidant and reductant.</li> <li>◦ Rinse with lots of water afterwards.</li> </ul>  |
| Chromic acid                 | Aggressive   | <ul style="list-style-type: none"> <li>◦ Dissolve 140g of sodium dichromate dehydrate in 100ml of water. Slowly add to 2 L of sulfuric acid while stirring. Keep cool.</li> <li>◦ Can be stored for years.</li> <li>◦ Wash with lots and lots of water afterwards.</li> <li>◦ Toxic, carcinogenic, tetratogenic &amp; can cause environmental damage. Avoid use.</li> </ul>   |
| Hydrofluoric acid            | Aggressive   | <ul style="list-style-type: none"> <li>◦ Concentrated HF can remove everything.</li> <li>◦ Can etch surface of glass</li> <li>◦ Can cause severe burn. Avoid.</li> </ul>  |

Source: <http://chem.chem.rochester.edu/~nvd/cleaningglassware.html>