BASE BATHS

1. Process

The base bath is used to clean glassware.

2. Hazardous Chemicals

The base bath contains ethanol and potassium hydroxide. Ethanol is toxic and flammable. Potassium hydroxide solutions are caustic. Do not inhale the vapors from the bath.

3. Personal Protective Equipment

Operators must wear goggles and ethanol- resistant gloves with medium or long sleeves. A lab coat and splash apron is also required. Do not put your unprotected hand in either bath. The base bath is not only caustic but it is organic, so your skin offers no protection from any toxic impurities in the bath.

4. Engineering/Ventilation Controls

Always keep the bath tightly covered except when transferring items. Keep spark sources away from the base bath.

5. Handling Procedures

To prepare the base bath, dissolve 500 g KOH in 1.5 L of distilled water. After the KOH dissolves, add 8 L of ethanol. To prepare the acid bath, add 0.5 L HCl to 8 L of distilled water.

To wash glassware in the baths: Hand wash the glassware with soap and water. Rinse off the glassware with distilled water thoroughly and shake off excess water before putting it into the KOH/EtOH bath. Leave it in that bath for at least an hour. Remove it from the bath, let excess EtOH drip back into the bath. Rinse off the glassware with distilled water before putting it into the dilute HCl bath. Leave it in that bath for at least 30 minutes. Remove it from the bath, let excess HCl drip back into the bath, then rinse again several times with distilled water and let it dry.

Do NOT put any of the following items into the KOH/EtOH bath:
- volumetric glassware
- stopcock keys
- glass frits/filters
- rubber items
- IR or UV cells or NMR tubes
- fragile or broken glassware
- glassware that still has grease or bulk dirt on it
- anything with mercury, sodium, potassium metal
- anything with high acute toxicity (e.g. mercury, thallium or cyanide salts)

To wash NMR tubes, don't put them in the baths. Rinse the empty NMR tubes with acetone, then dilute HCl, then distilled water, then acetone. If the tubes are still dirty, rinse them with distilled water then fill them with KOH/EtOH from the bath, leave them for an hour in the fume hood (no longer than 1 h), then dump the contents back into the bath. Rinse with distilled water then repeat with the dilute HCl. Rinse and dry. If elemental metal solid remains on the NMR tube, fill it with aqua regia (3:1 HCl:HNO_3) and leave it overnight in the fume hood. Then rinse with distilled water and repeat the KOH/EtOH and HCl treatments.

To wash UV cells, don't put them in the baths. Hand wash with soap and water. Rinse off with distilled water thoroughly and shake off excess water before rinsing them with acetone, and air dry them.

To deactivate the base bath: Add dilute HCl *very slowly* to the base bath to neutralize it. Check the pH frequently with pH paper. After neutralization, pour the mixture down the drain (if it contains less than 24% alcohol) or package as hazardous waste for disposal (if it contains more than 24% alcohol).

6. Accident Procedures

If there is a fire, evacuate the room, closing the door behind you. Pull the fire alarm and call 911.

If there is a spill of the base bath, keep all spark sources away. Keep lab doors and windows closed; the fumehood will exhaust the room and keep its pressure negative with respect to the hall and other rooms. Call 911 to report the incident. The Hazardous Materials Emergency Response Team will supervise the cleanup.

7. Waste Disposal

After deactivation (see Handling Procedures), the aqueous phases may be poured down the drain (if they contain less than 24% alcohol). Otherwise package as hazardous waste for disposal.

8. Maintenance:

Always keep the baths covered. If evaporation occurs, top up with ethanol for the base bath or distilled water for the acid bath.