

## Labware Cleaning - Safety Standards And Protocols

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### SCRUBBING LABWARE

Wear Nitrile gloves, lab coat, and eye protection (apron and boots if desired).

### HEXANE USAGE

- Wear rubber gloves, blue plastic suit, apron, rubber boots, and respirator with organic vapor (yellow) cartridges, face shield (if using half-face respirator).
- Turn on fume hood.
- All containers contaminated with sediment, pore water, or effluent, should be treated with hexane.
- Use labeled squirt bottle to apply hexane. Dump used hexane into a collection beaker.

When beaker is full, dispose of used hexane in drum.

- DO NOT pour hexane down the sink (small amounts of residual hexane are okay).

### ACID RINSING/SOAKING LABWARE:

Wear rubber gloves, lab coat, apron, rubber boots, face shield.

### DRAINING USED ACID

- Wear rubber gloves, lab coat, apron, rubber boots, face shield. Turn on exhaust fan in neutralizing room.
- Drain acid baths after their third full use (this is considered "old acid").
- Before draining acid baths, check "old acid" bottles; at least two should be full.
- Drain and neutralize one acid bath at a time.
- Neutralize acid with solid NaOH. CAUTION!!! This substance is highly corrosive and will burn skin.
- Add small amounts of NaOH, stirring to prevent caking.
- Adjust acid until pH is between 6 and 9.
- Drain neutralizing tank to treatment system (open drain valve only half-way). Close valve when drained.
- Do not hold un-neutralized acid in bin overnight.

### MIXING NEW ACID

- Wear rubber gloves, lab coat, apron, rubber boots, full-face respirator.
- Turn on fume hood.
- NEVER ADD WATER TO FULL-STRENGTH ACID!
- Fill emptied acid bath half-full with DI water.
- Carefully add 1.5 bottles of concentrated HCl to bath. Top off bath with DI water to line marked "1.5".

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- Rinse acid bottles thoroughly and store for recycling. Discard caps and remove plastic casing from bottles.
- Pipette Baths - acid should be replaced in these baths every 200 pipettes.
- Fill one pipette bath with old acid, the other with 0.5 bottle of concentrated HCl and deionized water.

### CLEANING GLASSWARE

**1) Basic Labware Procedure** (all containers contaminated with sediment, porewater, or effluent, e.g. beakers, jars, flasks, core tubes, orange caps, centrifuge tubes; containers of unknown origin)

- Alconox scrub and rinse well with DI water.
- Rinse with hexane
- Rinse with DI water
- Soak 24 hours in acid bath
- Rinse with DI water
- Soak 24 hours in fresh DI bath
- Rinse with DI water (Amber bottles need a final distilled water rinse)
- Place in drying oven overnight.

**2) Plasticware Procedure** (for containers used in metals or ammonia tests; otherwise, use procedure #1)

- Rinse with DI water
- Rinse with old acid (dunk in acid bath that needs to be drained, or fill separate container with old acid from a bottle; dump acid in neutralizing bath when done)
- Rinse with DI water
- Soak 24 hours in acid bath
- Rinse with DI water
- Soak 24 hours in fresh DI bath
- Rinse with DI water
- Place in drying oven overnight

**3) Screen Tubes**

- Gently Alconox scrub and rinse well with DI water
- Dip entire screen tube into beaker of hexane
- Rinse promptly to avoid melting glue

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- Soak in acid bath for 20 minutes
- Rinse with DI water
- Soak 24 hours in fresh DI bath
- Soak 48 hours in 1-micron filtered running seawater
- Rinse with distilled water
- Place in drying oven overnight

### 4) Teflon-lined Jar Lids

- Remove Teflon liners and wash separately (see below\*).
- Alconox lids extremely well with a scrub brush and rinse with DI water.
- Place in drying oven.
- When dry, put in clean liners and screw onto jars. If jars are still dirty, store in bags.

#### Wash Teflon liners by:

- Scrubbing with Alconox
- Rinsing with hexane (stack liners in a beaker, pour hexane over them, and swirl).
- Rinse with DI water.
- Soak 24 hours in acid bath.
- Rinse with DI water.
- Soak 24 hours in fresh DI bath.
- Rinse with DI water.
- Place in drying oven overnight.
- Put liners into clean lids and screw onto jars. If jars are still dirty, store in bags.

### 5) Volumetric Pipettes

- Rinse with DI water
- Rinse in old acid with tips up
- Rinse with DI water
- Soak in new acid for 24 hours with tips up
- Rinse with DI water
- Soak for 24 hours in fresh DI bath with tips up
- Rinse with DI
- Place in drying oven

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- Large quantities of pipettes can be washed in the pipette baths.