



# Lab Manual

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## ***Sink 432A (Old Lab)***

(sink432A)

### **1.0 Title**

Sink 432A

### **2.0 Purpose**

Sink432A is a general-purpose acid sink located in the Room 432A (old lab).

### **3.0 Scope**

Sink432A is equipped with large work surface deck area with a built-in tank for cleaning quartz ware, which is normally covered to provide more work surface space for the lab members. The staff also uses this tank for Tylan/Tystar quartz ware cleaning done in HF and/or in nitric acid solution.

### **4.0 Applicable Documents**

[Revision History](#)

### **5.0 Definitions & Process Terminology**

N/A

### **6.0 Safety**

- 6.1 Follow all the safety rules applicable to working with acids and bases.
- 6.2 Do not mix solvents with acids, which is potentially an explosive combination. This is also true when aspirating chemicals at this station.
- 6.3 Use the aspirator(s) to dispose of water-miscible, acids, bases, and solvents.
- 6.4 Do not place flammable solvents directly onto the hot plate found at this sink.
- 6.5 Face shields, surgical gloves covered by chemical-resistant gloves, and aprons must be worn at all times when working with chemicals at this sink.
- 6.6 Do not stock or store chemicals in the chemical cabinets that are not listed on the inventory list and posted on the front door of each cabinet (Room 432A).
- 6.7 The emergency safety shower/eyewash is located to the immediate right of this sink. To activate the shower, pull down on the shower ring; to activate the eyewash, press on the paddle.

### **7.0 Statistical Process Data**

N/A

### **8.0 Available Chemicals**

- 8.1 The chemicals used at Sink 432A are stored in metal cabinets in Room 432A in the vicinity of this sink. There are three cabinets in Room 432A: acids, bases (bases, developers, photoresist strippers), and electroplating and solvent cabinets. There is also a chemical cabinet available in Room 432B for disposal of chemicals. This cabinet gets checked and, if necessary, purged by staff on a weekly basis.

- 8.2 Acid cabinet in blue color is designated for acids, only. The top shelf holds Chromium Photomask Etchant, Buffered Oxide Etch 5:1, Buffered Oxide Etch 10:1, Hydrofluoric Acid 49%, and Sulphuric acid. The bottom shelf holds Phosphoric acid, Nitric acid, Hydrochloric acid, Aluminum Etchant, Pad Etch, and Acetic acid.
- 8.3 Base cabinet in yellow color is designated for bases, developers, and photoresist strippers. The top shelf of this cabinet hosts personal use chemicals (bases); any chemicals stored on this shelf must have the **approved special chemical** label on it (obtained from the Microlab office), plus your name and date. The middle shelf holds buffer solutions, preferential Silicon Etchant, and Ammonium Fluoride. The bottom shelf holds acetone, MP Developer, and PRS-3000 Photoresist Stripper. As with the other cabinet, to conserve space, please do not bring in an unopened duplicate bottle, until the one already in place has been emptied (general Microlab policy).
- 8.4 Tall plating and solvents cabinet in yellow color is designated for plating type chemicals and solvents, which are used at the plating sink in Room 432D, as well as some miscellaneous chemicals storage. Needless to say that the miscellaneous chemical stored in this cabinet need to also be chemically compatible to prevent fire or explosion hazards. Consult with staff (Bob Hamilton), if there are any questions (chemical compatibility).
- 8.5 The short yellow cabinet in the adjacent room (432B) is designated for **Chemicals for Disposal**. Chemical waste should be logged on the manifest log sheet, and tagged with ID stickers (chemical waste ID stickers can be found on the top of this cabinet) and must be filled out with the date and proper chemical information. Notify staff if the cabinet is full.

## 9.0 Equipment Operation

A hot plate and an ultrasound cleaner are available on the deck of 432A sink. Be sure not to place flammable solvents directly onto the hot plate (safety reasons). This sink is also equipped with two deck hoses, one on each side of the sink, and a nitrogen gun. There are two aspirators available on the left and right side of the sink.

### 9.1 Aspirator Operation

- 9.1.1 Twin aspirators can be activated by pressing the RESET then START button on the aspirator panel (s) located on the front panel of the sink.
- 9.1.2 The aspirator timer is set by default to three minutes (3-0-0); to change the time press the SET keys; note that there is one set key for each digit; e.g., to change the time from three to five minutes change the timer to read 5-0-0.
- 9.1.3 Use the aspirators to dispose of water-miscible acids and solvents. Be careful not to mix solvents with acids when aspirating this is a potentially explosive combination.

### 9.2 Deck Hose Instructions

- 9.2.1 The de-ionized (DI) water deck hose(s) for the sinks are always available for emergencies; it provides a good safety backup in the event of exposure to chemicals.
- 9.2.2 In the event that the deck hose (the black curly cord) develops a leak, you need to observe the following.
  - 9.2.2.1 Locate the self-closing, stainless steel **quick connect** fitting at the end of the black curly cord.
  - 9.2.2.2 Caution: This hose is under pressure, so be sure to wear safety apparel before proceeding further. These are face shield, lab apron, and chemical resistant gloves.
  - 9.2.2.3 Depress the **quick connect** locking mechanism. The fitting should snap apart quickly, thereby disconnecting the deck hose from its base.
  - 9.2.2.4 Report as a problem on FAULTS.

9.2.2.5 Set the deck hose at the rear of the sink deck for replacement.

### 9.3 Chemicals

- 9.3.1 The chemicals used at Sink432A are stored in the metal cabinets in Room 432A and are described in detail in the preceding Section 8.0.
- 9.3.2 For obvious safety reasons and chemical management purposes, do not store any chemicals in these cabinets that are not already inventoried and listed on the front of these cabinets.

### 9.4 Cleanup Procedure and Chemical Disposal

- 9.4.1 Whenever you have emptied a chemical bottle, either plastic or glass, make sure to use a safety carrier to transport it to the chem room Sink432C to rinse it thoroughly three times, scratch the label, then dispose of the bottle in the appropriate disposal can.
- 9.4.2 Wear a face shield, chemical resistant gloves and an apron when rinsing bottles. Bottles that have contained acetone, methanol, or developers can be rinsed at the black sink in Room 432C.
- 9.4.3 Bottles which have contained acids or chlorinated solvents, should be rinsed at Sink432C, which is a certified fume hood. This will prevent exposure to volatile compounds while you are rinsing out the bottles; if you are ever unsure of which sink to use, always use Sink432C.
- 9.4.4 As a courtesy to the next user, please leave the sink deck and surrounding work areas as you would like to find it. Use the techni-cloths provided in the nearby holder to wipe down and dry the deck. If you must temporarily leave a chemical process in place, be sure to use a process ID tag (tags can be found in the holder mounted on the right-hand side of this sink) filled out with your name, login, email address, any useful information, date, time, when you expect to return, and where you can be reached if necessary. Return all chemicals to the appropriate shelf in its respective cabinet.