

NYU CS-41 6FT Acid Wet Bench Standard Operating Procedure



NYU Nanofabrication Facility

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1. Introduction

The acid wet bench is designed to be used to etch materials from substrates as well as remove surface contaminants. These objectives are achieved via the use of liquid etchants with a $\text{pH} \leq 7$. The acid wet bench has a PVDF temperature-controlled heated bath to be used to perform etch processes at temperatures greater than room temperature. The acid etch hood also contains a PVDF ambient etch tank used to perform wet etching at room temperature. The acid etch hood is also equipped with a DI Water rinse tank with resistivity monitor, as well as two DI Water rinse sinks. Two (2) N_2 blow off guns are available to remove moisture after a cleaning process has been completed. The acid wet bench is also equipped with four (4) power outlets. The acid wet bench is equipped with three timers. The timers have no interaction to any processes. The acid wet bench hood is shown in Figure 1.

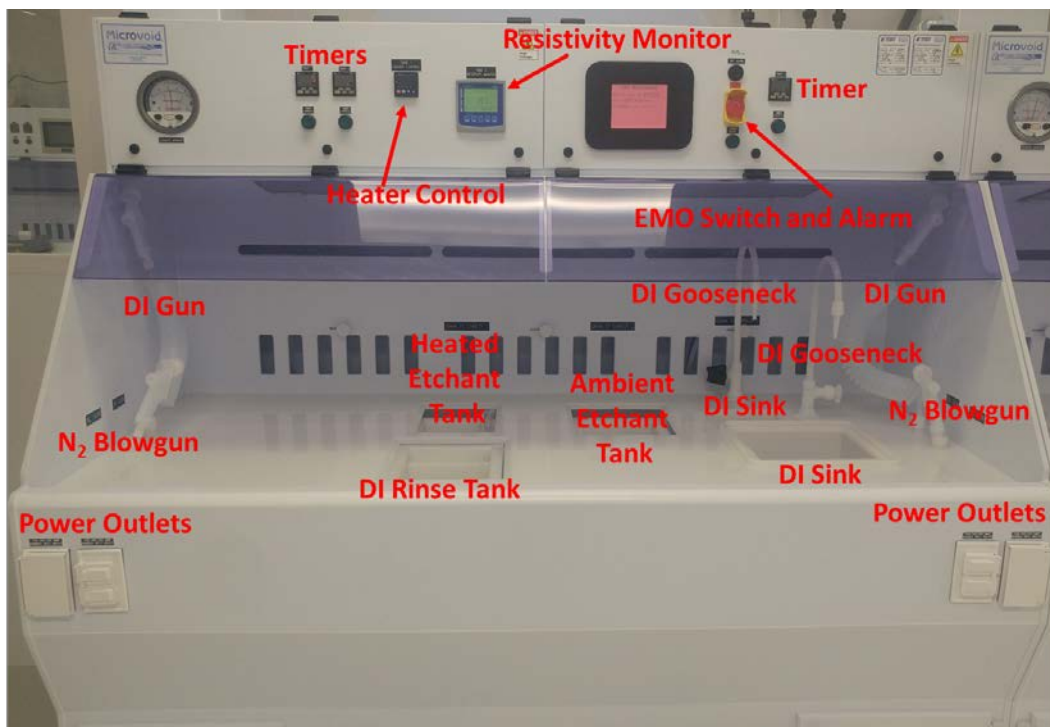


Figure 1: Acid Wet Bench

2. Programmable Logic Controller

The acid wet bench is equipped with a programmable logic controller (PLC). The PLC controls the main electrical, pneumatic and timing functions of the components within the station. The Touch Screen (described below) is the user's communication link to the PLC.

3. Touch Screen Controller

The Touch Screen provides a means of controlling the functions of the acid wet bench. The Screen also displays alarm conditions for the various systems. The Touch Screen Controller is

shown in Figure 2.



Figure 2: Touch Screen Controller

4. Emergency Off Button (EMO)

The red mushroom head pushbutton in the center of the electrical panel may be depressed for electrical shutdown. This condition will be displayed on the Touch Screen Controller. Twist and pull the pushbutton to reset the switch. The Reset Switch must be pressed to return to normal operation. The Main Screen can then be accessed.

5. Process Timer

This acid wet bench is equipped with three digital process timers installed on the instrument panel. When a timer is in stand-by the set point is displayed. Pressing the start/stop switch initiates the count. At any time during the countdown, pressing the start/stop switch will reset the timer. At the completion of the preset time the alarm will sound. Pressing the start/stop switch will silence the alarm and reset the timer. The timer has no interaction with any process.

6. DI Water Rinse Tank

This station is equipped with a DI Water Rinse Tank. The rinse tank can be used to rinse etchants away from the substrate surface after an etch process has been completed. The DI Water Rinse tank has resistivity monitoring capabilities.

7. Ambient Etchant Bath

The system is equipped with an ambient bath. The ambient bath will be used for etch processes at room temperature.

8. Heated Etchant Bath

The system is equipped with a heated etchant bath, for etching substrates above room temperature. The heated etchant bath temperature is regulated by a heater controller. The bath is also equipped with a N₂ bubbler system.

9. DI Water Sinks

The Acid Wet Bench is equipped with two (2) DI water sinks

10. DI Water Guns

The Acid Wet Bench is equipped with two (2) DI Water sprayers

11. GCFI Receptacles

This unit is equipped with six (4) GFCI protected duplex receptacles with fume-tight covers. They are located in pairs on the lower section on either corner of the hood. In the event of a fault, a yellow led will be illuminated on the GFCI receptacle. Unplug all equipment from all the receptacles on the circuit, and press the reset button on the GFCI receptacle to clear the fault. The receptacles are rated for 120 VAC with 20 amps MAX.