

NYU CS-41 6FT Solvent Hood Standard Operating Procedure



NYU Nanofabrication Facility

Table of Contents

- 1. Introduction**
- 2. Programmable Logic Controller**
- 3. Touch Screen Controller**
- 4. Emergency Power Off Button (EMO)**
- 5. Process Timer**
- 6. Hot Plate**
- 7. Ambient Bath**
- 8. Ultrasonic System with Heated Tank**
- 9. N₂ Blow Gun**
- 10. CO₂ Snow Jet Cleaning System**
- 11. Stainless Steel Cup Sink**
- 12. GCFI Receptacles**

1. Introduction

The solvent hood is designed to be used to remove surface contaminants from substrates as well as perform thin film liftoff processes. These objectives are achieved via the use of organic solvents. The solvent hood has a stainless steel temperature controlled ambient bath to be used to perform thin film lift off processes using Remover PG (NMP). The solvent hood also contains a stainless steel sonicator tank used to assist in the removal of thin films after a deposition process. A CO₂ snow jet cleaning system is also available to assist in the removal of hydrocarbons, organics, and silicone stains. Two (2) N₂ blow off guns are available to remove moisture after a cleaning process has been completed. The solvent hood is also equipped with a thermocouple-controlled hot plate, with a maximum temperature of 450°C and stirring capability. The solvent hood is equipped with three timers. The timers have no interaction to any processes. The solvent hood is shown in Figure 1.

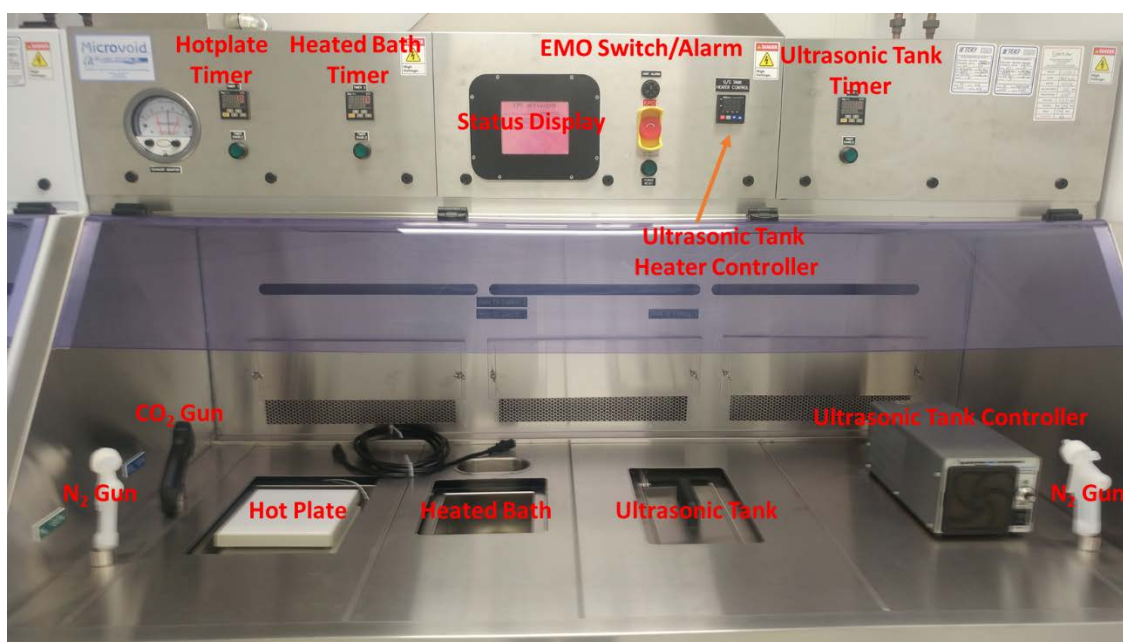


Figure 1: Solvent Station

2. Programmable Logic Controller

The fume hood 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 fume hood. The Screen also displays alarm conditions for the various systems in the fume hood. 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 fume hood 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. Hot Plate

This station is equipped with a hot plate, which features a 450°C temperature range, remote control, and stirring capability. It is mounted in a T-955 stainless steel well and is thermocouple protected against overheating. If the hot plate system exceeds the set temperature. The thermocouple will cut power to the unit.

7. Ambient Bath

The system is equipped with an ambient bath. The ambient bath will be used for thin film lift off processes. An NMP based solvent will be used in this bath.

8. Ultrasonic System with Heated Bath

This station is equipped with an ultrasonic system with heated stainless steel tank. This system is suitable for use with NMP based solvents.

9. N₂ Blow Guns

The system is equipped with two retractable (2) N₂ blow guns.

10. CO₂ Snow Jet Cleaning System

This station is equipped with a Snow Jet cleaning system. Upon activation, this unit expels CO₂ “snow” to facilitate cleaning of silicon wafers of hydrocarbons, organics, and silicone stains.

Note: The CO₂ cleaning stream is at cryogenic temperatures and can freeze your skin. Don't aim the cleaning stream at your body or anyone else.

11. Stainless Steel Cup Sink

This fume hood is equipped with one (1) stainless steel cup sink installed near the rear of the work deck.

12. 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.