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Overview
The Solvent benches are designed for the use of room temperature and temperature controlled solvents for substrate cleaning, lift–off pattern transfer schemes and other fabrication operations using solvents. Due to the fact that many solvents are considered flammable materials, the solvent benches are equipped with integrated fire suppression systems. Each bench is configured as follows:

- 72 inch manual front access wet bench constructed of stainless steel and equipped with casters, leg levelers and clear polycarbonate face shields.
- Two (2) heated foil static baths with lids and double containment.
- Two (2) MPC 102 Temperature controllers for the static baths.
- One (1) PROCON 959T process timer controller.
- Two (2) stainless steel solvent cup sinks that drain to separate carboys for small volume solvent disposal.
- One (1) polypropylene utility sink with gooseneck.
- One (1) DI Water and N2 Teflon gun station.
- One (1) Wafer vacuum chuck activated by foot pedal switch and vacuum pressure gauge.
- One (1) stainless steel perforated shelf.
- One (1) MPC 901 power up controller with system services interlocks and alarms and a mushroom EMO switch.
- One automated / manual fire detection and suppression system.

Safety: General Precautions
This system is designed to safely handle hazardous liquid chemicals, specifically solvents. To perform as designed the system must be operated per the guidelines described in this manual.

Electrical Safety
This system is powered by electricity. Like any electrically powered device, if it is not properly used it can cause an electrical shock. Users are not to perform electrical work on the bench. If there are suspected electrical problems experienced during its use, please immediately stop bench use and notify the staff.
The following suggestions are offered as generally safe chemical handling procedures, and are not meant to supplement or replace the chemical manufacturer’s MSDS information or facility safety procedures.

*Ensure you have read and understand the MSDS sheets for all chemicals prior to use.*

- Avoid skin contact with the chemical. Wear chemical-resistant clothing, gloves and boots when there is a probability of liquid contact.
- **Proper Personal Protective Equipment (PPE) MUST be worn at this bench at ALL times.** (See details in following sections)
- Chemical-resistant goggles must be worn when using chemicals in this bench.
- Keep work area well ventilated and do not inhale fumes.
- Open Containers are NEVER to be transported outside of the hood.
- All chemicals must be used inside the fume hood. No chemical work (including pouring chemicals) is allowed outside the hood.
- Secondary containment should be used when transporting chemical bottles to and from the hood or anywhere outside the hood.
• Pouring/Handling of chemicals and containers must be done with (2) hands at all times. If something does spill or fall, try to direct the material inside the hood.

**Solvent Bench Specific Restrictions and Instructions**
The following items apply when using the solvent benches:

• You must be signed into the portal to use a bench. Interlocks are installed on the power, water and nitrogen.
• Acids and bases are NEVER to be used in the Solvent benches.
• The “**Specialty Chemical Usage and Information Guide**” (Appendix A) details which chemicals are approved for each bench. If you don’t find the chemical you want to use in the Guide, please consult with the staff prior to use.
• Two users are allowed to use the solvent benches at one time. Users are required to check to make sure both are using compatible chemicals.
• The bench top cup sinks are for disposal of approved solvents. The “**Specialty Chemical Usage and Information Guide**” (Appendix A) is color coded to indicate which chemicals allowed in the bench can be disposed of into the cup sinks. The allowed chemicals are in **green**. The cup sinks are **not to be used to dispose of chlorinated and used lift off solvents that contain solid materials**. If you plan to use an uncommon solvent, please consult with the staff prior to use to determine exactly how it should be used in the benches.
• Chlorinated and used lift off solvents must be disposed of according to the Appendix D “**General Chemical Waste Disposal Procedures**”.
• Surface of bench must be rinsed and dried with clean wipes after each use.
• All lab ware items must be rinsed after use and placed back on the proper storage rack.
• **DO NOT LEAVE ITEMS ON THE BENCH!** The only item permitted to be left in the bench without prior staff approval is the provided funnel. Hang the funnel (Rinse First!) on the provided hooks when not in use.
• In general you should always be at the bench when in use. However, if you need to walk away from the bench for an extended period of time (>5 minutes) you need to follow the procedures and meet the requirements outlined in the policy in the General Wet Chemical Use Procedures, Appendix C of this manual) *(do we need...*
to say something here about heated baths or do these procedures apply to all baths, heated or unheated)

- **Hot plates are NOT TO BE USED** in the solvent benches. The heated water baths and immersion racks should be used to heat solvents in secondary containers if needed.

- If you find the bench dirty when you log in please report it immediately to the staff. For off hours use if you feel the bench is unusable, please report it by submitting a trouble call on RIMS, place a DO NOT USE sign on the bench and move to another bench.

**NOTE:** By failing to report issues with benches you are assuming responsibility for the condition of the bench. Users will be charged staff time and bench time if staff needs to clean up the bench because the user failed to do so.

---

**Personal Protective Equipment (PPE)**

- Wet Bench Personal Protective Equipment (PPE) must be used at all times when in the Wet Chemistry Bay. Requirements for the solvent bench are as follows:
  - Solvent Stainless Steel Benches (All chemicals) – Goggles, Chemical Gloves, Full Apron.

- Personal Protective Equipment **must be put on before you can enter** the wet chemistry bay. The PPE is found on racks just outside the bay.

- **Safety Tape installed on the floor** delineates two areas. The first is that area surrounding the PPE Rack and is the PPE staging area. In the PPE staging area PPE is put on and removed after use. It is demarcated with Black/white tape on the floor. The second area delineated is the Wet chemistry bay, where PPE MUST be worn at all times. It is demarcated with Black/yellow tape on the floor. **Please note that PPE cannot be worn outside of these two areas. It must be removed prior to entering the remainder of the cleanroom area.**
**Eye Wash and Safety Shower**
An Eye wash and Safety shower are available at the head of the Wet Bench Area. Additional Eye Washes and Safety showers are located through the exit door at the end of the Wet Chemistry Bay in the exterior hallway. See the location map in Appendix B of this document.

- If exposed, rinse for at least 15 minutes and yell for help from other users or staff while rinsing.

**Buddy Policy**

*Buddy Policy Rules are in effect at all times when using the solvent benches.* For the Solvent benches you must have another trained user in the lab at all times in case you need assistance. If you are using the Solvent bench in off hours (6:00PM-8:00AM) both you and your buddy must sign in to the “Buddy” log in the cleanroom gowning area. Information on the laboratories “Buddy Policy” can be found in the Appendix F of this document as well as in the Laboratory Safety Manual.
Bench Layout

Figure 1.0 Solvent Bench Top

Figure 2.0 Solvent Bench Head Case Controls and General Layout
Figure 3.0 Solvent Bench Headcase – Left side

Figure 4.0 Solvent Bench Headcase – Right side
Bench Components

Solvent Bench Safety Interlocks and Alarms

**Alarm Condition 1**
The solvent benches have safety interlocks on the Exhaust, N2 and CDA. If any of these utilities are missing or out of the specified acceptable ranges then the bench will go into an alarm and the Alarm 1 indicator will be lit on the MPC-901 controller. If this situation occurs the power to the bench will be shut down preventing the bench from being used.

**Alarm Condition 2**
The solvent benches have safety interlocks on the Head case door to shut down the bench if its opened during normal operation. If the door is opened the system will go into an alarm and the Alarm 2 indicator will be lit on the MPC-901 controller. If this situation occurs the power to the bench will be shut down preventing the bench from being used.

**Alarm Condition 3**
The solvent benches have a Float switch on the bottom the bench to detect liquid on the floor of the bench. This switch will trip and turn the bench off if there is ~2in. of a liquid in the bottom of the bench and the Alarm 3 indication will be lit on the MPC-901 controller. This will again shut the bench down to prevent operation. Adjacent to the MPC 901 controller there is an Alarm Silence button to mute the active alarm. If the alarm is active but silenced the bench will be non-operational. If you have silenced an active alarm on this bench please contact the staff immediately.
**Photohelic**

The photohelic differential pressure switch/gage measures the difference in pressure between the bench exhaust and the room. A low reading on this device indicates there is an improper condition for normal bench operation. The measured pressure differential is indicated by the black needle. The two red needle indicators represent the normal operating range of the bench exhaust.

**NOTE:** Users should NEVER adjust the set points of the photohelic as it can lead to personal injury and or death!

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**Vacuum Chuck**

Each solvent bench is equipped with a centrally located vacuum chuck for securing the user work piece while nitrogen gun drying after rinsing. To operate, place your substrate on the chuck located at the front of the bench deck immediately in front of the sink and the Nitrogen and DI water guns. Activate the vacuum to secure your substrate by stepping down on and holding down the foot pedal located at the bottom of the bench on the floor. This is a momentary pedal so once it is released the vacuum is turned off. There is a vacuum gauge mounted in the head case that indicates the level of vacuum you have on your sample. Ensure you have an adequate vacuum before drying your sample with nitrogen.
Gooseneck Sink

NOTE: Solvent waste should NEVER be disposed of down the drain of the gooseneck sink. The sink is to be used for pouring waste into waste containers and for rinsing containers and other lab ware after use and for filling the heated water baths.

To operate the sink, use the following procedures:

1. To turn on the goose neck sink use the manual valve located at the base of the gooseneck.

2. To drain the gooseneck sink
Stainless Steel Heated Foil Static Bath

The solvent bench is equipped with two heated foil static baths, one at each end of the bench. The baths are intended to be used to control the temperature of water in the bath. The water temperature is then used to control the temperature of solvent placed in an appropriate container and immersed in the water bath. The temperature of the bath is controlled with the MPC 102 temperature controller located in the head case on the appropriate side of the bench. The MPC 102 controller is used to set and monitor the liquid level, the liquid temperature for use (with high and low temp alarms), the liquid temperature for draining and the process time duration.

To operate the Heated Foil Static Bath the MPC 102 controller:

1) **Static Bath Power Start Up**
   a. Ensure the MPC 102 Controller is on. If the indicator light is not on, depress the controller PWR key. If the indicator red light is on press the RESET button.

2) **Static Bath Water Fill**
   a. Manually fill the tank with water with your secondary solvent containing container in the bath.
   b. With MPC 102 Controller on, reset the water bath Liquid Level Alarm by pressing the SAVE / SILENCE key. (Make sure the tank is full when you press this key)

3) **Static Bath Heater On/Off**
   a. To turn on the Heater press the HOLD key on the controller. To turn the heater back off press the HOLD key again.

4) **Determine Static Bath current process time and temperature parameters**
   a. Depress the SETPOINT Key once, the current temperature setpoint will be displayed in the temperature display and the current process time setpoint will be displayed in the timer readout.
5) To Change the Static Bath process time
   a. Hold the controller SETPOINT Key down, the controller will enter the VIEW mode. Once in this mode the UP and DOWN keys are used to set the Timer Preset to its desired value.

To Change the Static Bath Set Temperature Depress the controller MODE key once.
   a. The word “CODE” will appear in the temperature display.
   b. Enter the PROGRAM access code and depress the mode key to get into the program mode. Depress the MODE key to cycle through the parameter list until you get to “PS”, the process (Temperature) set point. Use the up arrow and down arrow keys to get to the desired value. Depressing the key once and releasing will allow the accurate setting of the least significant digit. Holding the key down will activate the automatic, rapid incrementing or decrementing of the display depending on the arrow direction.

Draining the Water Bath
Users should not drain the heated water tanks to the Carboys. If you need the tank drained (significant solvent spillage from user container into bath for example) please contact a staff member to assist you.

Stainless Steel Cup Sinks
The solvent bench is equipped with two stainless steel cup sinks to be utilized when disposing of allowed chemicals. Each bench has two cup sinks to be used for non-chlorinated solvents that do not contain lift off material. Chlorinated solvents and used lift off solvents, no matter the type must be disposed of in waste disposal containers per the procedures and protocols described in the Appendix D of this manual.

Solvents that are allowed to be disposed of in the cup sinks are indicated in green in the Specialty Chemical Usage and Information Guide (Appendix A) in this manual.

Process Timer (PROCON 959T)
A process (or count down) stand-alone timer is mounted on the head case over each section (A/B) of the Acid/Base Wet Bench. The timer is set in the MANUAL mode. In
this operating mode, when the timer is in the RESET mode, the UP and DOWN keys are used to simply set a time that is to be counted down to match user processing needs.

The timer equipped with four control keys and a read out in minutes and seconds.

1. The START key’s function is to start the timer either from the RESET or HOLD mode.
2. The STOP/RESET key is a multifunction key. It is used in the following ways:
   A. When the timer has counter down to 00:00 this key is used to reset it for the next run. It places the unit in the RESET mode and reloads the display with the previous time.
   B. If the timer is actively counting down, depressing the STOP/REST key once will place it in the HOLD mode.
   C. If the timer is in the HOLD mode, depressing the key once will place it in the RESET mode and reloads the display with the previous time. Depressing the key and holding the key down will allow the UP and DOWN keys to be used to set a new value.
3. The UP key is a multifunction key. It is used in the following ways:
   A. In the RESET mode the key will adjust the time to be counted down as currently viewed in the display. Depressing the key once and releasing will allow the accurate setting of the least significant digit. Holding the key down will activate the automatic, rapid incrementing of the display.
   B. In the HOLD mode, when the STOP/RESET key is depressed and held down, this key advances the preset value.
4. The DOWN key is a multifunction key. It is used in the following ways:
   A. In the RESET mode the key will adjust the time to be counted down as currently viewed in the display. Depressing the key once and releasing will allow the accurate setting of the least significant digit. Holding the key down will activate the automatic, rapid incrementing of the display.
   B. In the HOLD mode, when the STOP/RESET key is depressed and held down, this key decreases the preset value.

Fire Suppression System
Due to the flammable nature of a large number of organic solvents commonly used in processing, all benches in which solvents are used are equipped with an integrated fire detection and suppression system. Simply stated, the benches have automated flame detection sensors that are tied to a compressed carbon dioxide gas delivery system located in the chase behind the benches. The fire suppression system can be activated automatically by the sensor / control system or manually by the use of manual fire alarm pull stations mounted on the front of each bench. Figure 3.0 below shows the location and component identity of the system as installed on the bench and the photograph at the left shows the fire alarm manual pull device.
PLEASE NOTE: Carbon dioxide gas discharge into nearby space can collect there. When the alarm operates, either by auto detection or manually, vacate the cleanroom immediately. Carbon dioxide gas can cause injury or death. Note that the fire alarms associated with the fire suppression system for the wet benches are not to be used nor are they tied to the building fire alarm system. The manual alarms on the benches are only to be activated if there is a fire in the Solvent Benches. **THE BENCH MOUNTED MANUAL ALARMS DO NOT SET OFF THE BUILDIGN FIRE ALARM SYSTEMS!**
Heated Solvent Baths

All heated solvent baths are to be created using the stainless steel heated foil static baths. No solvent bath is to be heated directly in the heated foil bath. To create a heated solvent bath the following procedure must be used:

1. Activate the heated foil static bath by using the procedure in the section above. Add water if needed to achieve the proper level for operation. ( steps 1-3 in section above)
2. Select a container and an immersion rack for your solvent bath and make sure the container fits into the rack and can be removed easily.
3. Remove the cover of the heated foil static bath and set the immersion rack with the empty solvent container into the bath to make sure the water level is not above the top of the container.
4. Remove the intended solvent container from the rack, leaving the rack in the water bath.
5. Carefully fill the solvent container with the required solvent needed to cover your sample.
6. Place the solvent container back in the rack.
7. Place a temperature measurement device into the solvent bath.
8. Turn on the static bath heater controls and set the water bath temperature to the temperature required for the solvent bath using the controller and the procedure (Steps 4 and 5) described above.
9. Monitor the solvent bath temperature and increase the water bath temperature as needed to achieve the required solvent bath temperature.
10. Immerse your sample in the bath for the required time.
11. Remove your sample and rinse and blow dry as needed.
12. Turn off the temperature controller and monitor the solvent temperature.
13. When solvent temperature reaches a temperature of xx C, remove the solvent bath container from the immersion rack and let cool further in air on the bench deck.
14. When solvent temperature reaches zz C, dispose of the solvent in the cup sink or into a waste container per the procedures in Appendix D of this manual.
**Waste Disposal**

The Solvent benches require both manual and auto (carboy disposal) disposal methods and procedures. Non-chlorinated non lift-off solvents can be disposed of directly down the cup sink into the carboys. Chlorinated and all lift-off solvents must be disposed of into waste containers per the methods described in Appendix D of this manual apply.

To utilize the cup sinks for solvent disposal:

1. Check the “Carboy” full indicator light on the head case above the cup sink you intend to use.
2. If the light is on, DO NOT DISPOSE OF YOUR SOLVENT in the cup sink. Contact the staff and the carboy will be removed and emptied by the staff. If there is not an immediate carboy replacement available, dispose of your solvent manually into proper waste containers per Appendix D of this manual.

**Solvent spills into the water bath**

If for any reason, a significant amount of solvent spills from your secondary bath container into the temperature controlled water bath, please notify the staff immediately so that arrangements can be made to empty and refill the water bath either to continue your use or before another user logs on.

**Hot Plate Usage**

Hotplate usage is **NOT ALLOWED** in the solvent benches. Any heating of solvents must be done using the heated water baths.

**System Requirements**

- **DI Water:** 10 GPM at 35 psi
- **Nitrogen:** 10 SCFM at 40-60 psig
- **CDA:** 10 SCFH at 90-100 psig
- **AC Power:** 208V 3Φ 35 Amp, 5 Wire
- **Ventilation:** 125 CFM at 0.75-1.25in. WC
## Appendices

### Appendix A: Specialty chemicals Usage and Information Guide

<table>
<thead>
<tr>
<th>Trade Name</th>
<th>Actual Chemical Comp.</th>
<th>Bench</th>
</tr>
</thead>
<tbody>
<tr>
<td>NMD-3</td>
<td>Tetramethyl Ammonium Hydroxide</td>
<td>TMAH Etch/Litho</td>
</tr>
<tr>
<td>T 111 Rinse</td>
<td>Mesitylene (Trimethylbenzene)</td>
<td>Solvent</td>
</tr>
<tr>
<td>1165</td>
<td>1-Methyl 2-Pyrrolidinone</td>
<td>Solvent</td>
</tr>
<tr>
<td>ACT 935</td>
<td>Monoethanolamine, Hydroxylamine, Water, Pyrocatechol</td>
<td>Solvent</td>
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<td>ACT 970</td>
<td>2-Methylaminoethanol, Water, Benzotriazole, Gallic Acid</td>
<td>Acid Base</td>
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<td>ACT AS-65</td>
<td>Monoethanolamine, Water, Soft Acid, Gallic Acid, Benzotriazole</td>
<td>Acid Base</td>
</tr>
<tr>
<td>Act NE-14</td>
<td>Dimethylacetimidie, Ammonium Acetate, Acetic Acid, Ammonium Fluoride</td>
<td>Acid Base</td>
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<td>Adhesion Promoter AP3000</td>
<td>1- Methoxy, 2- Propanol, Water</td>
<td>Solvent</td>
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<tr>
<td>Aluminum Etch 16:1:1:2</td>
<td>Phosphoric Acid, Water, Acetic Acid, Nitric Acid</td>
<td>Acid Base/Litho</td>
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<tr>
<td>Aluminum Etch D</td>
<td>Phosphoric Acid, Sodium M Nitrobenzene Sulfonate, Acetic Acid, Water</td>
<td>Acid Base</td>
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<td>AZ 400K</td>
<td>Water, Potassium Borate</td>
<td>Acid Base/Litho</td>
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<td>AZ 422 MIF</td>
<td>Tetramethyl Ammonium Hydroxide</td>
<td>TMAH Etch/Acid Base/Litho</td>
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<td>BOE (10:1, 6:1)</td>
<td>Ammonium Fluoride, Hydrogen Fluoride, Water</td>
<td>Acid Base/Litho</td>
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<td>Branson EC</td>
<td>Morpholine, Monoethanolamine</td>
<td>Solvent</td>
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<td>Branson MC</td>
<td>Monoethanolamine, D'limonene, Tetasodium salt of Ethylenediamine-Tetraacetic Acid</td>
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<td>CD 26</td>
<td>Tetramethyl Ammonium Hydroxide</td>
<td>TMAH Etch/Acid Base/Litho</td>
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<tr>
<td>Trade Name</td>
<td>Actual Chemical Comp.</td>
<td>Bench</td>
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<tr>
<td>Chrome Etch 1020</td>
<td>Cerric Ammonium Nitrate, Nitric Acid</td>
<td>Acid Base</td>
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<tr>
<td>Concentrate Developer</td>
<td>Water, Alkaline-phosphate salt, sodium metasilicate pentahydrate</td>
<td>Acid Base/Litho</td>
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<tr>
<td>Copper Etchant 100/200</td>
<td>Hydrochloric Acid, Ferric Chloride, Water</td>
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<tr>
<th>Trade Name</th>
<th>Actual Chemical Comp.</th>
<th>Bench</th>
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<td>Copper Etch 49-1</td>
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<td>Copper Sulfate Pentahydrate, Sulfuric Acid</td>
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<td>Developer DS2100</td>
<td>Dipropylene glycol dimethyl ether, Naphtha (petroleum)</td>
<td>Solvent</td>
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<td>EKC 830</td>
<td>N-Methyl Pyrrolidinone, 2-2 Aminoethoxy Ethanol</td>
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<td>Gold Etch TFA</td>
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<td>Potassium Hydroxide, Water, Inorganic Borates</td>
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<td>N-Methyl Pyrrolidinone, Surfactant</td>
<td>Solvent</td>
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<td>Sulfuric Acid, Peroxymonosulfuric Acid, Hydrogen peroxide</td>
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<td>Nickel Etch I</td>
<td>Ferric Chloride, Water, Hydrochloric Acid</td>
<td>Acid Base</td>
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<td>Nickel Etch TFB</td>
<td>Nitric Acid, Potassium Perfluoroalkyl Sulfonate, Water</td>
<td>Acid Base</td>
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<td>Nickel Etch TFG</td>
<td>Thiourea, Sodium N-Nitro Benzene Sulfonate, Sulfuric Acid</td>
<td>Solvent</td>
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<td>Nikelex</td>
<td>Nickel Chloride, Sodium Hypophosphite, Sodium Succinate, Water</td>
<td>Solvent</td>
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<td>PAD Etch</td>
<td>Acetic Acid, Ammonium Fluoride, Surfactant</td>
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<td>SU-8 Developer</td>
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<td>Titanium Etch TFTN</td>
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<td>Acid Base</td>
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</table>
Appendix B: Eye Wash and Safety Shower Locations

- Eye Wash
- Eye Wash and Shower

Wet Chemical Bay
Appendix C: General Wet Chemical Use Procedures

Introduction

This document contains general procedures and guidelines for working with chemicals in lab wet chemical benches. Always be sure to review the required methods for using specific systems and wet benches prior to use to determine other specific instructions or restrictions.

Working with Chemicals:

The following procedures are to be followed when using chemicals in the wet chemical benches.

1. Ensure you are wearing all appropriate PPE.
2. Select and Rinse appropriate lab ware for your process
3. Create a “Chemical Use Label” for each chemical solution you are using
4. Retrieve chemicals from their designated chemical cabinets and transport them to the bench. Use proper secondary containment for transporting the chemicals to the bench.
5. Slowly pour the chemical(s) into your lab ware. When creating mixtures or dilutions be sure to determine the safest way to mix, such as which component should be poured first and added to.
   Example: a general rule of thumb is to always add Acid to Water, not the reverse!
6. When finished pouring the chemical(s), replace the chemical bottles into their appropriate chemical cabinet. When transporting the chemicals back to the cabinets you must use the appropriate secondary container.
7. In general you should always be at the bench when in use. However, if you need to walk away from the bench for an extended period of time (>5 minutes) you need to follow the procedures outlined in “Unattended Chemicals” below.
8. When you are finished processing with the chemicals you need to dispose of them into an appropriate waste bottle. Follow the procedures outlined in “General Waste Disposal Methods“ document.
9. Prior to leaving the bench you should clean the bench by rinsing it with DI water and drying it off completely with clean wipes.
Unattended Chemicals

If you need to leave your chemicals unattended during your process you must meet the following requirements:

1. Containers must be covered but still allow vapors to escape.
   *NOTE:* There are teflon covers, as well as pyrex lids that can be used as covers. Covers should not be air-tight, they are intended to provide protection against splashing or fuming of the chemical.

2. The **Extra Information Section** of the Chemical use label MUST be filled out completely.

3. Prior to logging out of the bench in RIMS, edit your reservation to indicate that the chemical will stay in the hood, please include: time present, removal time, chemical and concentration that is contained.
   *NOTE:* Any chemical left on the benches past the date / time in the **Extra Information Section** will be removed and samples thrown away!
Appendix D: General Wet Bench Waste Procedures

Introduction

The following procedures are to be used when chemical waste is to be handled manually. That is, when the user or the staff is to dispose of chemicals without the use of automated systems contained in some of the lab equipment. (carboys with built in pumping systems or pumping carts for example)

Procedures for Filling a Chemical Waste Bottle

1) Select an appropriate waste bottle for the chemical you are disposing of from the chemical storage cabinets.
   a. If no bottles are available for your chemical, or the bottle is full, you will need to create a new waste bottle. Follow the procedures below for creating a new waste bottle.
2) Place the bottle into the gooseneck sink in the bench and then remove the vented cap.
3) Place a funnel into the bottle.
4) SLOWLY pour the chemical waste into the bottle.
   a. ENSURE the chemical is at room temperature before pouring it into a waste bottle
   b. Never over fill a waste bottle. Please refer to the waste bottle pictogram for the max fill line.
   c. Always rinse the funnel thoroughly after use.
5) Put the vented cap back on the bottle.
   a. Ensure you do not over tighten the caps as the bottle can still become pressurized and potentially explode.
6) Get a clean wipe from the storage rack.
7) Pick up bottle and wipe bottom of bottle. Make sure it is dry; do not place the bottle on the bench top.
8) Transport and place the bottle back in the appropriate chemical waste cabinet. Be sure to use appropriate secondary containment when transporting the waste containing bottle.
Creating a Waste Bottle

The following are the procedures that should be followed when creating a new waste bottle.

1. Retrieve an appropriate empty chemical bottle for the chemical you are disposing of and vented cap (these are located on the Waste Bottle Storage Rack).
2. Rinse 3 times and empty rinse water into sink.
3. Replace cap with new vented cap from storage shelf.
4. Completely fill out and apply waste label.
5. Follow steps listed above to add waste to the bottle.
6. Wastes are separated into different benches for isolation/safety.

Appendix E: Wet Bench Troubleshooting

1) If power, water, and nitrogen are not working, ensure you have logged in to the bench on RIMS and that the BLUE light is on.
2) If you are logged in and utilities do not work, submit a trouble call using RIMS and find a staff member.
Appendix F: Buddy Policy

In order to meet the requirements of the Buddy Policy certified cleanroom users who are working outside the normal business hours of 8AM-6PM must identify another certified user of the cleanroom who will be responsible for checking in on the user working in the cleanroom. That second certified user is required to check on their “Buddy” every 15 minutes to ensure they are safe or to call for assistance if there is an emergency.

Users and their Buddies must sign into the logbook after normal working hours (between 6 P.M. and 8 A.M weekdays, and all day on weekends and holidays).

An additional requirement of our buddy program is that when a certified user is working in the wet chemical bay, their “buddy” must also be in the clean room, aware of their situation, and close enough to be of assistance in case of an accident. The individual acting as your buddy does not need to be at your side constantly, just available and aware.

Use of standard lithography chemicals (i.e. resists, developers, and solvent based resist strippers) in the Lithography area without a buddy present inside the clean room is acceptable.