



Principal Investigator:

Michael Walter (A-105, x8951)

Emergency Information:

Michael Walter (cell): 202-644-3595

Secondary Contacts:

Jing Yang (G02, x8995)

BBR (Gary Bors): 202-510-8577

All other emergencies: 911

Purpose:

This laboratory is used for general diamond anvil cell sample preparation, including cleaning and mounting of diamonds and sample loading. The lab contains common solvents, epoxies, ovens for heating samples and common sharp tools for sample preparation.

All laboratories and facilities on the Broad Branch Rd. campus are controlled areas. Specific training must be completed and documented before working in this laboratory / facility.

• **Standard Operational Protocol for Handling of Solvents:**

1. Solvents and cleaning chemicals such as acetone, isopropyl alcohol, ethanol and methanol are to be used with care. Small amounts are to be transferred into appropriately labeled bottles and dispensers from larger bottles stored in the flammable chemicals storage cabinet. Large bottles need to be returned to this cabinet after decanting small amounts.
2. Disposal of solvents by pouring them down the sink drain is strictly prohibited. Please dispose waste solvents into appropriate recycling bottles kept for this purpose. Chemical waste pick-up will be performed every month or as needed.
3. Appropriate protection must be worn when transferring chemicals, including protective gloves and eyewear.

• **Sample Loading**

1. There are five stereo microscope stations with optical fiber lighting. Turn off the microscope lamps when you leave the working area since they waste energy, burn out expensive bulbs and are a fire hazard. Please help to maintain all the microscopes and cameras to keep them in operational condition. Contact Jing Yang about any maintenance issues or to replace burned-out bulbs.
2. Please take caution when connecting light sources and other electrical appliances. Connect them to the appropriate electrical outlets and avoid using extension cords.
3. Please keep the lab and the microscopes clean and keep all tools in their designated storage areas after use.
4. Dispose of cleaning supplies such as cotton swabs and Kimwipes after use of the working area. Each microscope area should be clean of all personal items at the end of each day. If you would like to lay out your tools and DACs on a particular station for extended work, please put them in a box or tray labeled with your name.
5. Metal fragments from gaskets or shards from broken diamonds are hazards. Please take care when working with these objects. Latex gloves are available and should be used.
6. Needles, tweezers and sharp sample-loading tools are used frequently in this lab. Care must be taken during use. Please store these tools carefully so that the next person using that area is not at risk. It is recommended that when needles are used to load hazardous samples, these needles must be disposed of in the specified or labeled container for hazardous sharps kept in the lab.
7. All broken glassware must be disposed in the glass recycling container meant for this purpose and never in the trashcans.
8. All sharp blades should be disposed of into the red sharps bin.



- **Sample Cleaning**
 1. Always use the minimum amount of solvent necessary when cleaning your sample. Acetone, isopropyl alcohol, ethanol and methanol should be always used with caution. Latex gloves and dust masks are available.
 2. Carefully clean and return the pyrex beakers to the drying rack after use.
 3. Standard operational protocol should be followed when you use the ultrasonic cleaners. Never use flammable liquids to fill the tank as they will vaporize, and could cause a fire or explosion, or release harmful gasses into the workspace. When the unit is running, never insert your hands into the solution as it could cause burns due to high temperature.

- **Diamond Mounting**
 1. Always use STYCAST black epoxy and epoxy hardener with caution as they may cause skin irritation and eye damage. Latex gloves and dust masks are available.
 2. Clean up the working area and wash your hands after you finish with mounting.

- **Heating**
 1. Ovens are used for storage or drying samples. They are set at 120 °C. All materials stored in ovens must be labeled with username and date. Un-labeled samples may be disposed of without notification. Always use tweezers or tongs to transfer samples in and out of the oven to avoid burns.
 2. Heating stage. Always use crucible tongs to transfer samples from and to the heating stage.

- **Emergency Procedures**
 1. Fire extinguisher
 2. First aid kits
 3. Emergency shower eye wash
 4. Emergency Power Off Switch
 5. Inform the PI immediately of any problems or safety incidents.

- **Miscellaneous**
 1. Food and drinks are not allowed in the sample preparation laboratory.
 2. Close the lab door and turn off the lights at the end of the day if you are the last person working in the lab.

Laboratory User

I agree that I have thoroughly read and understood this laboratory safety document. I have access to this safety information at all times when I am working. I have been trained to be able to identify the hazards to which I may be exposed and to follow the work practices and procedures discussed in this document. I certify that I will conduct my research work safely and that I will be responsible for following stated safety policies.

User Name (Print)

User Signature

Date

Principal Investigator

I certify that the information presented in this safety document is accurate and complete. I agree to comply with all safety procedures and to fully train and supervise all researchers under my direction.

PI Signature

Date