



Principal Investigator:

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Secondary Contacts:

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Emergency Information:

Staff Member: 301-509-4678 (cell)

BBR (Gary Bors): 202-510-8577

All other emergencies: 911

Purpose:

Sample preparation including sample mounting, precision cutting, and polishing.

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.

List of laboratory equipment and user instruction

- **Chemicals:** Reagent chemicals are not stored in this room, but commercial polishing compounds, plastic resins, and vacuum pump oil are maintained. MSDS sheets for the Buehler polishing and mounting materials are available at the following website: http://www.buehler.com/productinfo/msds_us.htm and will be made available in the laboratory. Any user of these materials should study the appropriate MSDS sheets beforehand. The polishing suspensions and pastes are considered non-toxic and non-combustible and meet US Dept. of Transportation standards for nonflammable shipping. Inhalation of dry powders of any polishing compounds should be avoided. All polishing should be done in water or oil suspension. Dust masks (available in the laboratory) should be worn while handling dry polishing powders. Overexposure to fumes from the plastic resin or vacuum pump oil should be avoided.
- **Vacuum Impregnation:** A small plastic bell jar is attached to a vacuum rouging pump for vacuum impregnation of plastic resins around and in pore spaces of samples. As with any vacuum system, there is the possibility of implosion during operation. The bell jar should be inspected before it is pumped down, and if any chips or cracks are observed, it is not to be used – a sign stating it is out of order should be placed on it and the facility manager should be notified. Eye goggles should be worn if one is examining close-up, the status of an impregnation while it is under vacuum.
- **Buehler ISOMET Precision Cutting Saw:** The use of this equipment requires training. Diamond saw blades are very expensive to replace. Choice of diamond saw blades and cutting speed depends on materials. Please consult with Fei for your applications.
- **Polishing Papers and Polishing Wheel:** Polish papers with different grits (200, 300, 400, and 600) should be periodically replaced. Polishing wheels are labeled with different polishing powder sizes. Don't mix the size and replace polishing clothes as needed. Don't do use the sandpaper for dry-polishing in this room.
- **Colloidal Acid Polishing:** Training is required to use this machine. Colloidal silica solution is used for etching. Always wear gloves to handle the solution. Clean the machine



thoroughly after use. Waste solution needs to be disposed properly.

- **Stereo Microscope, Hot Plate, and Ultrasonic Cleaner:** Keep the area clean and maintain all the equipment in operational condition. Keep the hot plate temperature below 100 °C when unattended.
- **After Hours Restrictions:** No restrictions for polishing and related sample preparation.

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