



**NATIONAL UNIVERSITY OF ENGINEERING  
COLLEGE OF GEOLOGICAL, MINING AND  
METALLURGICAL ENGINEERING  
GEOLOGICAL ENGINEERING PROGRAM**

**LABORATORY OF PETROGRAPHY  
SAFETY MANUAL**

**A. GENERAL SAFETY RULES**

1. Safety glasses are Mandatory for any work performed in the laboratory.
2. Contact lenses are not permitted when using potting resins, acids, or organic solvents.
3. Any visitors and Minors may be present only with the permission of the lab supervisor, and *must* wear safety glasses at all times.
4. The last employee to leave for the day should lock the doors, check status of ovens, furnaces, and all other electrical devices.
5. All reagents should be clearly labeled and stored in designated places.
6. All heavy items and chemicals should be stored below counter level.
7. Fume masks must be worn when pouring resins.
8. Rubber or disposable plastic gloves must be worn when using acetone, methanol, acids, toluene, resins, or colloidal silica polishing compound.
9. No open-toed shoes may be worn in the laboratory or grinding room.
10. The following must be used under the fume hood:
  - a. Acetone (used for cleaning molds)
  - b. Ethanol (used for cleaning molds)
  - c. Toluene (used for adding to epoxy and removing lap cloths)
  - d. Epoxy-Resins (used in preparing pellets)
  - e. Shellac (used for spraying core)
  - f. Polyester Resins (used for potting block and core samples)
  - g. Acids (used for special preparations)

**N.B.:** Acids must not be used or stored with any organic compounds (items a-f).

**B. SAMPLE PREPARATION, ANALYSIS. AND SAFETY PROCEDURES**

**Sample crushing and grinding (ASTM 2013)**

**Safety Procedures**

#### **a. Using the Jaw Crusher**

- Dust respirator, ear protection, and safety glasses/goggles must be worn at all times.
- Laboratory coat and/or apron must be worn
- No open-toed shoes or sandals May be worn
- Keep fingers and clothing away from crushing plates

#### **b. Acetone**

- Avoid breathing fumes
- Wear protective gloves
- Avoid skin and eye contact

### **C. LARGE HIGH-SPEED ROTARY MILL GRINDER (FOR 20 MESH GRINDING)**

#### **Safety Procedures**

#### **a. Using the Large High-Speed Rotary Knife Grinder**

- Dust respirator, ear protection, and safety glasses/goggles must be worn at all times
- Laboratory coat and/or apron should be worn
- No open-toed shoes or sandals may be worn
- Do not ever open grinder door while blades are still moving
- Always unplug Machine before cleaning inside of the chamber

#### **b. Acetone**

- Avoid breathing fines
- Avoid skin and eye contact
- Wear protective gloves

### **D. SMALL HIGH-SPEED ROTARY MILL GRINDER (FOR 60 MESH GRINDING)**

#### **Suggestions**

- a. It is important to thoroughly clean the mesh on the delivery tube. If there are problems cleaning the mesh, place tube into an ultrasonic cleaner. Dry tube by placing in oven.
- b. If the mesh of the delivery tubes consistently clogs, try heating the tube before grinding.
- c. Grinder and tube should be cleaned with acetone often when grinding shaley and dirty coals.
- e. Rotary blade gap should be 0.015 inch.

## **Safety Procedures**

### **a. Using the snail High-Speed Rotary Mill Grinder**

- Use in vented hood
- Dust respirator and safety glasses must be worn at all times
- Laboratory coat and/or apron should be worn
- No open-toed shoes or sandals may be worn
- Do not move glass plate while blades are moving
- Do not insert fingers into chamber for any reason unless machine is unplugged
- After adjusting blades always check to see if rotor will turn 360° before switching machine on.

### **b. Acetone**

- Avoid breathing fumes
- Avoid skin and eye contact
- Protective gloves must be worn

## **E. EMERGENCY PROCEDURES AND PRECAUTIONS**

### **Eye Wash Station**

The eye wash station should be positioned in the Laboratory free of obstructions. The water should be changed at least once every 6-12 months. Be acquainted with the correct operation of the eye wash station before an emergency.

### **Fire Extinguisher**

The fire extinguisher should be located free of obstructions within the Laboratory. The correct type of extinguisher (CO<sub>2</sub>, water air pressure, dry chemical, etc.) should be used depending on type of hazard that exist in the Laboratory. Before using dial 4256, if no answer, 801-45661245 to report fire then extinguish.

### **First Aid**

A first aid box consisting of band-aids, antiseptic, bandages, etc., should be placed in an easily accessible place in the Laboratory. Any accident should always be reported to a supervisor regardless of how serious.

### **Acid Spills**

In case of acid spills the emergency number is 4256 and should be called **IMMEDIATELY - DO NOT ATTEMPT TO CLEAN UP YOURSELF.**



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- Keep fingers and clothing away from crushing plates

**b. Acetone**

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**C. LARGE HIGH-SPEED ROTARY MILL GRINDER (FOR 20 MESH GRINDING)**

**Safety Procedures**

**a. Using the Large High-Speed Rotary Knife Grinder**

- Dust respirator, ear protection, and safety glasses/goggles must be worn at all times
- Laboratory coat and/or apron should be worn
- No open-toed shoes or sandals may be worn
- Do not ever open grinder door while blades are still moving
- Always unplug Machine before cleaning inside of the chamber

**b. Acetone**

- Avoid breathing fines
- Avoid skin and eye contact
- Wear protective gloves

**D. SMALL HIGH-SPEED ROTARY MILL GRINDER (FOR 60 MESH GRINDING)**

**Suggestions**

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