

F. LABORATORY SAFETY PLAN FOR MATERIALS PROCESSING LAB, Room 112

Department of Technology, Gorham, ME

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Coverage

All persons who work in this lab are responsible for following the practices outlined in this plan. Before using the lab, students and others will be informed of those parts of this plan that relate to their safe use of the facility and will be provided necessary training.

General Lab Safety Procedures

1. Know the potential physical, chemical, and biological hazards in the lab.
2. Be familiar with all lab safety and health rules and procedures.
3. Know the location of emergency equipment.
4. Know how to call for additional help if an emergency arises.

Call:911 Police & Safety.

5. Be familiar with the types of personal protective equipment in the lab.
6. Do not eat or drink in the lab.
7. If a chemical or substance container is not properly identified, DO NOT USE IT.
8. Wear appropriate personal protective equipment.
9. Eye protection is mandatory at all times in this lab.
10. Confine loose long hair or loose fitting clothing.
11. Wash hands after using chemicals.

Hazardous Materials

Procurement:

1. Before any purchase is made of potentially hazardous materials, each substance will be evaluated for hazards using supplier literature and material safety data sheets with the goal of procuring the safest materials and to allow for informed use and control of the materials.
2. Material safety data sheets will be requested when ordering any potentially hazardous material or substance. When the order is received, the MSDS will be placed in the lab (MSDS) binder which is kept in the supply room. If an order comes in without a MSDS, a second request will be made for one and the item will not be used until the MSDS is received.

3. The receiving date will be marked on the container top or face to monitor shelf life and use.
4. If appropriate warnings and proper use procedures are not clearly indicated on the containers, they will be added.

Storage and Distribution:

All hazardous materials are to be stored in their original containers or clearly marked, approved safety containers. Flammable liquids and powders are to be stored in a flammable materials cabinet.

Hazardous materials will be distributed for use only after instruction in their safe use and handling. They will be distributed in clearly marked containers.

Use and Disposal Procedures

1. Read all safety and use information on the container or the MSDS for the material being used.
2. Wear eye protection.
3. Wear a dust mask when grinding or sanding solid materials.
4. Avoid skin contact with chemicals, and wash any chemical off your skin that you contact. In any case of irritation notify the instructor.
5. Avoid using flammable materials around heated surfaces or flame unless it is a necessary part of the procedure. In cases where it is necessary, use a minimum amount of the material, remove any unneeded material from the area, monitor the process carefully, assure adequate ventilation, and be prepared for the possibility of fire.
6. After use, rags saturated with flammable materials are to be placed in an approved used rag container .
7. Return all storage cans to the flammable cabinet and close the doors of the cabinet securely.
8. Dispose of leftover materials in approved, marked hazardous waste disposal containers only.
9. Use spray materials only in small amounts and only in well ventilated areas away from sparks, flames, or heated surfaces.

Temporary Laboratory Hazardous Waste storage

USM's policy for storage of hazardous waste in the lab specifies a maximum of one gallon unless other arrangements are made with the Occupational Safety & Health Office.

1. A one gallon container is to be used for temporary hazardous waste storage. The container displays the following markings and labels: Hazard Waste Storage; Date Storage was Initiated; and Flammability Label. Also, a funnel and drip can is provided for pouring of waste.
2. Any hazardous fluid remaining after the completion of a process is to be poured into the marked gallon container.

3. Wear splash goggles when pouring.
4. When finished, place the funnel in the drip can and cap the container.

Permanent disposal procedure for hazardous materials:

The campus hazardous waste storage facility is located next to the technology center. To transfer materials to it call the Occupational Safety and Health Office (5406) for a pickup.

Other waste items

Contact the Occupational Safety & Health Office for instructions.

Physical Hazards

Potential physical hazards found in this lab are primarily those associated with the use of hand, power and heating tools, compressed air, steam, and clamping and pressing equipment. The following rules are to be followed:

Tools and Machines

1. Use tools only after receiving instruction and only if their proper use is understood.
2. Follow all safety rules.
3. Do not use broken or dull tools.
4. Wear safety glasses at all times when working in the laboratory. Use guards on power tools if at all possible. Any procedures requiring the removal or non-use of the guards must be approved by the instructor.
5. Report all potential safety hazards or broken tools to the instructor.

Compressed air:

1. Be sure all hoses are in good condition.
2. Before using compressed air, check to be sure all couplings are secure and in good working order. Also when using an air nozzle, check it for condition and be sure that it is an approved 30 lb. capacity type.
3. Do not direct air flow at your eyes or skin area. Compressed air can be extremely dangerous and is capable of penetrating the skin and flesh.

Compressed gas cylinders:

1. All compressed gas cylinders must be clearly labeled.
2. Use compressed gas only if you understand the proper use of the equipment and potential hazards.
3. Avoid sudden impact such as dropping it on the floor, etc.

4. When finished, close the shutoff valve snugly and re-cap before returning the cylinder to its storage area.

Emergency procedures

Fire or fire alarm:

1. Call **911, Police & Safety**. (They will notify the Fire Department and DFM.)
2. Close all windows and doors and evacuate the building.
3. Assist the Fire Department and Police & Safety by standing away from the building.
4. Do not re-enter the building until advised by the Fire Department or Police & Safety personnel that the building is safe to enter.

Hazardous chemical spill

1. If there is danger to building occupants, etc., confine the fumes by closing the doors and windows. Pull fire alarm so that evacuation can begin. Call Police & Safety. State your name, the location, and nature of the emergency and that you have activated the fire alarm. Police & Safety will notify the local evacuation/response team for professional assistance.
2. A container of absorbing material is available in the laboratory to help contain chemical spills. In the event of a spill, place an adequate amount of the material on the spill to absorb the chemical. Contact the instructor or person in charge of the laboratory to arrange for pick up and disposal of the material.

Hazardous gas leaks

1. Confine the fumes. Pull fire alarm so that evacuation can begin. Report the spill to the instructor or department chairperson who will call Police & Safety and DFM.
2. If it is safe to do so, departmental staff will attempt to shut off main gas source. With flammable gas, one should refrain from turning electrical switches on or off. If flammable gas has ignited and the leak cannot be corrected, remove other flammable or combustible materials from the area of the flame and allow the gas to burn until fire fighters arrive.

Poisoning

Keep Calm - Act Quickly

Calling for help:

1. **Call Police & Safety (911) first; then the Maine Poison Control Center (871-2381).**
2. Identify yourself and give your relationship to the victim.
3. Give your telephone number.
4. Describe the victim by name, age, and sex.

5. If possible have the container or poison in your hand and identify as best you can:

- a. What was taken?
- b. When was it taken?
- c. How much was taken?
- d. How is the victim acting?

6. Be prepared to answer any additional questions.

7. Follow the advice given by the Poison Control Center.

Telltale signs of poisoning

1. Unusual stains or odors on clothes or skin.

2. Unusual odor on breath.

3. Sudden changes in behavior, such as drowsiness, stomach pains, irritability, and signs of fear.

4. Drug or chemical containers that are open and/or out of place.

First Aid Procedures

Poisonous Fumes or Gases

1. Immediately carry or drag the person to fresh air; be sure exposure to fumes is minimized.

2. Start artificial respiration if person is not breathing and continue until the person resumes breathing or help arrives. Send someone for help.

Poisons on the Skin

Brush off all dry poisons, flood involved parts with plenty of water. Then wash skin with bar soap and water and rinse well. Remove and discard all affected clothing.

Poisons in the Eye

Immediately flood the eye gently with large amounts of plain, lukewarm water (never hot) for at least 15 minutes. Do not allow the victim to rub his eyes.

Swallowed Poisons

Look into the victim's mouth and remove all tablets, powder, or any material that is present. Examine the mouth for cuts, burns, swelling, unusual coloring or odor. Rinse and wipe out mouth with a cloth. If the victim is awake and able to swallow, give one half glassful of water.

NOTE: The USM Department of Facilities Management has the MSDS on file for information pertaining to all hazardous chemicals used on each campus.

First Aid - Call 911 - send someone for assistance

Heavy Bleeding

1. Lay the patient down.
2. Control the bleeding by applying direct pressure over the wound.
3. If direct pressure over the wound does not work, then apply direct pressure to the appropriate artery.
4. Avoid using a tourniquet.

Shock

Signs of shock: pallor, cold clammy skin, beads of perspiration on the forehead, palms of hands, weakness, nausea or vomiting, shallow breathing and rapid pulse. Procedure to be used:

1. Stop the bleeding.
2. Keep the patient lying down; if no head injury is involved, elevate the patient's legs.
3. Keep airway open.
4. Keep the patient warm.

Chemical ingestion

1. Call for assistance (911).
2. Check MSDS for instructions.

Chemical in the eye

1. Check the MSDS for instructions.
2. Flush with water continuously using the lab eyewash station at the sink area.
3. Call for assistance (911).

Training

As stipulated in the Department Plan (Section E), everyone using the materials processing lab will be trained on this plan before any lab work is begun.

Training documentation

Each trainee will sign the Lab Safety Plan Training Documentation sheet after being briefed on and being given a copy of this document. All documentation sheets in turn will be filed by the person responsible for the training.

