Michigan Technological University
Department of Physics

LABORATORY DOCUMENTATION & UPKEEP

This section of the Laboratory Safety Plan focuses on the documentation and upkeep responsibilities of the individual laboratories. These responsibilities include:

- Safety training sheets for employees
- Chemical inventories
- Material safety datasheet binders
- Proper labeling of containers
- Proper disposal of waste
- Safety audits

The following hand-out should be read and signed by all employees and a copy of the signature page should be stored in the Laboratory Safety Plan.

LDU Appendix A: Standard Operating Procedures
LDU Appendix B: Chemical Inventory
LDU Appendix C: Housekeeping, Hazardous Waste & Labeling Containers
LDU Appendix D: Safety Checklist
LDU Appendix E: Exit Interview Signature Statement

mtu/jpm/8-09

Michigan Technological University
Department of Physics

PHYSICS LABORATORY SAFETY
Rules, Regulations, Information

Emergency Response

1. Extreme Emergency: Dial 911 for fire, ambulance, medical assistance or police.

2. Campus Security: Dial 7-2216

Read this and the attached safety sheets. The content applies to Physics students in all teaching/research laboratories.

Hazard Communication Standard

I am aware that I have a "right to know" all safety information contained in the manufacturer's Material Safety Data Sheet (MSDS) for any chemical. I can obtain this information by requesting a copy of the MSDS from Jesse Nordeng in Room G018.

After carefully reading this and the attached MTU safety sheet, complete the section below and give it to your instructor. You should keep the safety rules and regulations sheet in your laboratory notebook for handy reference.

Laboratory Worker Safety Agreement

I understand that I am responsible for conducting myself in a safe manner and for becoming aware of and informed about special hazards of technique, apparatus or chemicals in the Physics laboratories. I will conform to any safety instructions presented orally or in writing by the instructor or contained in posted instructions or safety memoranda that are distributed.

I have read the Physics Laboratory Safety Plan and the safety rules and regulations sheets and will observe and adhere to them.

Signing of this Laboratory Worker Safety Agreement in NOT a waver of individual rights of redress in case of injury.

Signature: _____ Date: _____
Student's signature

Print Name: _____
Student's name

MTU Student No.: _____ Course No.: _____

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GENERAL LABORATORY SAFETY

This is intended to inform you of the proper techniques and practices to be used in physics' laboratories.

What is the "Right to Know" law?

Federal law states all who work in or around chemicals have the right to know what chemicals that they are potentially going to be exposed to and what the effects of that exposure might be.

The law also states that employees shall be trained on the following topics:

- Methods and observations that may be used to detect the presence or release of a hazardous chemical.
- The physical and health hazards of chemicals in the work area.
- The measure that employees can take to protect themselves from these hazards, including specific procedures the employer has implemented to protect employees from exposure to hazardous chemicals such as appropriate practices, emergency procedures and personal protective equipment to be used.

In general, the proper guidance for these topics to be trained on is found in the Material Safety Data Sheet (MSDS). An MSDS is a data base on a chemical. Found in this data base are such things as substance identification, physical data, fire and explosion data, toxicity, health effects, reactivity, spill and leak procedures, and protective equipment. As this information is vital to proper handling of chemicals, it is mandatory that you read the MSDS for each compound that you work with. Failure to do so and failure to be knowledgeable about these safety aspects will result in the suspension of your laboratory work until this situation is corrected. Appendix I of the Chemical Hygiene Plan details the understanding and using of Material Safety Data Sheets.

Proper Labeling of Chemicals

As part of the Right to Know law, any chemicals not completely used within an eight-hour period of time must be labeled with the following information:

- **Health, Reactivity, Contact and Flammability Hazard – using Hazard Target Code**

- **Name of the compound found in the container**

Rules, Regulations and Safe Laboratory Techniques

1. MIOSHA approved eye protection (goggles) must be worn at all times when you are in the laboratory unless the instructor states they are no required. The wearing of contact lenses while doing lab work is not recommended.

2. Never work alone in the laboratory. A responsible adult must be in verbal contact with you whenever you are doing laboratory work. Children are not permitted in the laboratory.

3. Never carry out unauthorized, unplanned, non-scheduled experiments. Discuss any unusual work with your instructor prior to doing it.

4. Do not handle any lab equipment from on-going experiments unless specifically authorized by the laboratory instructor.

5. Report all accidents and/or injuries to your instructor or supervisor **immediately**. If medical treatment/consultation is required, follow instructions outlined in appendix A: Emergency Procedures. Tell your instructor that you are going for treatment and give him/her your student I.D. number so Health Services can be called prior to your arrival. S/he must fill out an incident report within 24 hours.

6. Never eat, drink or taste anything (food or chemicals) while you are in the laboratory. Do not place fingers, pencils, pipettes, etc. in your mouth. Wash your hands when you finish working in the laboratory.

7. Use solvents only in designated well ventilated areas.

8. Dress: confine long hair and sleeves when working. Wear closed shoes, NOT SANDALS, in the lab. Leather shoes are recommended.

9. Wear appropriate gloves and face protection when working with hot or hazardous liquids, solids or solutions.

10. Do not force glass tubing and/or thermometers into rubber stoppers – always lubricate the hole in the stopper and protect your hand with a towel when inserting the glass.

11. Never use an open flame (Bunsen burner) in the vicinity of flammable solvents.

12. Clean up all chemical spills immediately. Consult your instructor for the proper chemical waste disposal procedure.

13. Do not throw chemical waster in the sink or in the waste baskets. Always consult your instructor for the proper chemical waster disposal procedure. Broken glass

is to be put in the receptacles marked "Broken Glass Only." If you break glass, make sure all the pieces are swept up.

14. Do not test odors by direct inhalation from the container.

15. For chemical contact with skin or eyes, wash the affected area with water for 15 minutes.

16. Handle all electronic equipment with care. Do not allow equipment to get wet.

17. During the first day of lab, locate all emergency and safety equipment that you may need to use. This includes: emergency shower, fire extinguisher, fire blanket, nearest emergency exit and emergency telephone and numbers.

18. Material Safety Data Sheets are located in the machine shop, Fisher Hall Room G018. This information is made available to you as part of the Michigan "Right to Know" law. These sheets provide valuable information on the hazards associated with materials that you may be handling in the lab.

19. Open/close dampers properly to ventilate areas being used.

20. Beware of pinch points when using compactors, mixers and other machinery.

21. Use common sense when working in the laboratory.

Other Obvious Safety Guidelines Include:

- **NO contact lenses in the laboratory**
- **NO eating or drinking in the laboratory**
- **NO smoking in the laboratory**
- **NO open toed shoes to be worn in the laboratory**
- **NO work of a hazardous nature is to be performed alone in the laboratory**
- **Clothing must extend below the knees**

Finally, all projects in the laboratory must be approved by either a faculty or staff member who is knowledgeable about the potential risks involved in the project before the project is started.