



Laboratory Safety Training

Department: Engineering

Principal Investigator: Mark Chaffey

PI's Designee (if applicable):

Location(s) Covered by this Document (Bldg/Room): LRAUV assembly area in building G

Emergency Contact (Name/Phone #): Mark Chaffey 775-1708 or 236-5191 (cell), Tara Vadas 775-1774 or 251-1611 (cell),
Edward Peltzer 775-1851 or 566-5063 (cell)

Using this document as a guide, the Lab Supervisor/PI or their designee is responsible to train each lab employee of the hazards, procedures and safeguards applicable to the lab upon hire and to conduct refresher training before any new hazards or procedures are introduced to the lab. This Lab Safety Training document describes tasks in the lab in which employees need Personal Protective Equipment (PPE) to protect themselves from exposure to hazards. While discussing lab activities and the potential hazards with lab staff, the Lab Supervisor/PI or their designee will address; how the lab obtains PPE: what types of PPE are used for which tasks, where and how the PPE is stored and maintained, how to properly use the PPE, and discuss any limitations of the PPE. The Lab Supervisor/PI or their designee shall also discuss general PPE safety practices, including not wearing PPE outside the lab hazard areas (e.g. hallways and eating areas).

Training and Education:

1. Training is performed at an employee's initial assignment to a work area where hazardous chemicals are present, and before assignments involving new exposure situations.
2. Training is provided when a new hazard or piece of equipment is introduced to the work area.
3. Training is conducted by the employee's Lab supervisor/PI or their designee.
4. All training is documented.

The Lab Supervisor has responsibility to:

1. Ensure employees know and follow the provisions of the MBARI Chemical Hygiene Program.
2. Ensure manufacturer SDSs for all hazardous chemicals in the lab are readily accessible.
3. Ensure protective equipment is available and in working order.
4. Ensure appropriate training for their employees is completed.
5. Provide routine surveillance of hazardous chemical use, protective apparel, and emergency equipment.



The Lab Employee is responsible for:

1. Planning and conducting each operation in accordance with the MBARI Chemical Hygiene Program and laboratory procedures.
2. Practicing good personal chemical hygiene habits, and correcting and/or reporting any noticeable safety hazards.
3. Seeking guidance for any lab procedure in which there is question or concern.

Upon completion of Lab Safety Training, the Lab Employee will:

1. Be knowledgeable of the contents and the location of the MBARI Chemical Hygiene Program.
2. Know the location of potentially hazardous chemicals in the lab, and proper procedures for handling.
3. Recognize chemical labeling and meaning, and the major components for secondary container labeling.
4. Locate and know how to use a Safety Data Sheet (SDS) in the workplace.
5. Know the location and proper use of lab equipment, safety equipment, spill kit, emergency eyewash/shower, first aid kit, fire alarm, fire blanket, and extinguisher.
6. Know the location, proper use, proper care, limitations, useful life, and disposal of PPE.
7. Demonstrate knowledge of emergency procedures in the event of a hazardous chemical spill.
8. Know how to seek medical attention in the event of exposure.
9. Know the proper disposal procedure for hazardous materials.
10. Know the methods and observations that may be used to detect the presence of a hazardous chemical, and the physical and health hazards of chemicals used.
11. Where applicable, know the Permissible Exposure Limits (PELs) for OSHA regulated substances, or recommended Threshold Limit Values (TLVs) for other chemicals used in the lab.

I. Physical Hazards and Lab Specific Equipment:

Select the physical hazards and lab specific equipment applicable to your lab. Determine who will provide training on the physical hazards and lab specific equipment applicable to your lab.

Applicability	Physical Hazard	Potential Risk	Risk Control & PPE	Training to Include	Training Provided By (PI/Designee Name)
☐	Compressed Gas Cylinders	Inhalation, explosion, rocketing	Safety glasses or goggles, appropriate insulated gloves	PPE, storage/handling, labeling, disposal	
☐	Sharps	Cuts, exposure	Safety glasses or goggles, lab coat, appropriate gloves	PPE, storage/handling, disposal	



Applicability	Physical Hazard	Potential Risk	Risk Control & PPE	Training to Include	Training Provided By (PI/Designee Name)
☐	Cryogenics including liquid nitrogen and -80° freezers	Major skin, tissue, or eye damage	Safety glasses, goggles, or face mask for large volumes, appropriate impermeable insulated gloves. lab coat	PPE, storage/handling, labeling, disposal	
☐	Fume Hoods, Snorkels, and Glove Boxes	Exposure to vapors and gases.	Safety glasses or goggles, lab coat, appropriate gloves	Air flow, sash height, incompatibles, excessive fill, proper housekeeping.	
☐	Centrifuge	Imbalanced rotor can lead to broken vials, cuts, exposure	Safety glasses or goggles, lab coat, appropriate gloves	PPE, proper balancing, speed selection, manufacturers manual	
☐	Pipetting	Ergonomics, overfill, broken glass, exposure	Safety glasses or goggles, lab coat, appropriate gloves	PPE, ergonomics, proper pipetting procedures including no mouth pipetting	
☐	Electrical Safety	Arc flash, electrocution, shock, fire	See Safety Office	Training as required for task	See Safety Office for training
☐	Lasers including Ultraviolet Radiation	Fire hazard, eye damage, skin damage, chemical exposure (if laser uses dyes).	Appropriate protective eye wear, wavelength and optical density based on individual beam parameters, appropriate skin protection	PPE, signage, engineering designs, manufacturers manual	
☒	Lithium Batteries	Fire, explosion, inhalation	Dependant on condition; if compromised, hot, or off-gassing and not properly trained contact the Safety Office	Lith-X, procedures for compromised, hot, or off-gassing batteries, signage	Mark Chaffey



Applicability	Physical Hazard	Potential Risk	Risk Control & PPE	Training to Include	Training Provided By (PI/Designee Name)
☐	Radioactive Materials	Cell damage, potential spread of radioactive materials	Safety glasses or goggles, appropriate impermeable gloves, lab coat.	PPE, storage/handling, labeling, disposal.	
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II. Chemical Hazards:

Select the chemical hazards applicable to your lab. Determine who will provide training on the chemical hazards specific to your lab.

Applicability	Chemical Hazard	Potential Risk	Risk Control & PPE	Training to Include	Training Provided By (PI/Designee Name)
☐	Flammables	Fire	Safety glasses or goggles, flame resistant lab coat, appropriate fire retardant gloves	PPE, storage/handling, labeling, disposal, fire extinguisher and fire blanket use.	
☐	Corrosives	Eye or skin damage	Safety glasses or goggles, lab coat, appropriate gloves	PPE, storage/handling, labeling, disposal.	
☐	Oxidizers	Fire, eye or skin damage.	Safety glasses or goggles, lab coat, appropriate gloves	PPE, storage/handling, labeling, disposal.	
☐	Acutely Toxic (severe) Ex: Hydrogen Sulfide	Spills, splashes, ingestion, inhalation, absorption. Chemicals pose a high level of immediate health risk.	Safety glasses or goggles, lab coat, appropriate gloves. Further PPE and appropriate training may be required for specific Acutely Toxic chemicals.	PPE, storage/handling, labeling, disposal.	



Applicability	Chemical Hazard	Potential Risk	Risk Control & PPE	Training to Include	Training Provided By (PI/Designee Name)
☐	Carcinogenic	Spills, splashes. ingestion, inhalation, absorption. Potential cancer-causing agents.	Safety glasses or goggles, lab coat, appropriate gloves. Further PPE and appropriate training may be required for specific Carcinogens.	PPE, storage/handling, labeling, disposal.	
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III. Container Management:

Select the container management requirements applicable to your lab. Determine who will provide training on container management for your lab.

Applicability	Container Management	Potential Risk	Training to Include	Training Provided By (PI/Designee Name)
☐	Labeling	Unknown contents, wasted chemicals, mixing of incompatibles.	Proper labeling procedures. No use of abbreviations.	
☒	Storage and Segregation	Mixing of incompatibles.	Compatibility knowledge, SDSs. Accumulation amounts to stay under 5 gallons for liquids.	Mark Chaffey
☐	Waste Disposal	Environmental and accumulation issues.	Safety Office waste disposal contact procedures. Accumulation amounts to stay under 5 gallons for liquids.	
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IV. Personal Protective Equipment (PPE) Selection & Use:

All users must wear PPE as required by the task and laboratory where the work is being performed. Sections included in this document address relevant PPE. Please see the laboratory PI or Safety Office for training which includes: Selection, use, care, laundering, and disposal.

V. Emergency Equipment:

Select the applicable equipment in your lab. Determine who will provide training on the equipment specific to your lab.

Applicability	Emergency Equipment	Training to Include	Training Provided By (PI/Designee Name)
☐	Eyewash / Safety Shower	Location, activation, availability (keep clear).	
☐	Chemical Spill Kit	Location, contents, spill reporting, spill cleanup, hazardous waste disposal.	
☐	First Aid Kit	Location, contents, injury reporting.	
☒	Fire Extinguisher	Location, type, incompatibles, use, incident reporting.	Mark Chaffey
☐	Fire Blanket	Location, use, injury reporting.	
☒	Fire Alarm Pull Station	Location, use, incident reporting.	Mark Chaffey
☐	Lith-X	Location, use, incident reporting.	
☐	Laboratory SDSs	Location, contents, upkeep, understanding SDSs.	
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VI. Emergency Procedures:

Determine who will provide training on emergency procedures.

Applicability	Emergency Procedures	Training to Include	Training Provided By (Safety Personnel Name)
☒	Fire	Emergency procedure in MBARI Safety Manual, incident reporting as required.	Mark Chaffey
☐	Earthquake	Emergency procedure in MBARI Safety Manual. Do not turn power on!	
☐	Power Outage	Contact Facilities. Do not reset breaker panels unless qualified and authorized to do so.	
☐	Medical	Emergency procedure in MBARI Safety Manual, injury reporting as required.	
☐	Chemical Spill	Emergency procedure in MBARI Safety Manual, incident reporting as required.	
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VIII. Principal Investigator Acknowledgement of Laboratory Safety Training Responsibilities:

I have reviewed and understand it is my responsibility to ensure employees working in the lab(s) listed in this document are trained on the hazards, equipment, procedures, and safeguards applicable to the lab(s).

PI Signature

Date

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IX. Documentation of Training: (signature of all lab users is required)

I have received training on and understand the hazards, equipment, procedures, and safeguards in this document applicable to the lab(s) in which I work.

Name	Signature	Date
Henry Ruhl		
Fred Bahr		
Alex Harper		
Patrick Daniel		
Jim Scholfield		
Ken Heller		
Denis Klimov		
Paul Coenen		

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