

1 AUBURN UNIVERSITY CHEMICAL SAFETY PLAN

1.1 Introduction

As part of continuing efforts to provide a safe and healthful workplace for students, visitors and employees, Auburn University has implemented this Lab Safety Manual (LSM). The LSM is a written program that defines procedures and control measures that should be observed by all individuals in laboratories to ensure safe work practices and protect employees from health hazards associated with the use of chemicals in the workplace. The LSM is a uniform reference for administrative procedures, engineering controls, and safe work practices that protect laboratory personnel from hazards associated with laboratory chemicals.

The LSM does not substitute the need for individual laboratories to have written standard operating procedures (SOP) pertinent to the work conducted. Principle Investigators (PI) have a duty to ensure that employees, students, and volunteers within their work areas are aware of the LSM, and that they understand and follow all provisions of the LSM that apply to their work, and all laboratory-specific SOPs.

The primary objectives of the LSM are:

- Maintain a safe environment for all faculty, staff, students, and the visiting public.
- Provide the necessary facilities, staff, and equipment for safety.
- Protect the environment from hazardous chemicals and wastes.
- Institute a Lab Safety Manual.
- Comply with all regulatory requirements that would impact laboratory functions.
- Conduct laboratory inspections to ensure safety goals are being met.

1.2 Chemical Safety Responsibilities

Responsibility for chemical health and safety rests at all levels; Auburn University has designated the following responsibilities for the development and implementation of the LSM.

1.2.1 Risk Management and Safety

Risk Management and Safety (RMS) unit has the responsibility for developing and implementing University safety programs. The Lab Safety Program Manager; a representative from RMS is responsible for:

- Updating the LSM
- Working with the laboratory community, administrators, and other employees to develop and implement appropriate chemical hygiene policies and practices;
- Providing technical assistance for complying with the LSM and answering chemical safety questions for employees;
- Overseeing the University-wide chemical safety inspection and training;
- Assisting PIs in the selection of appropriate laboratory safety practices and engineering controls for new and existing projects and procedures;
- Provide investigation of incidents which result to exposure of personnel or the environment to hazardous chemicals.



1.2.2 Department Chairman/Head or Director of an Administrative Unit

Department Chair/ Head / Director is responsible for chemical safety in the department/unit. The chair ensures that faculty members understand and promote implementation of the LSM in the department's laboratories; the chair may choose to appoint a safety liaison who works closely with RMS to coordinate and monitor implementation of the LSM within the department.

1.2.3 Faculty/Principal Investigator (PI)/Supervisor

Faculty / PI/ Supervisors are employees of Auburn University who have the primary responsibility for chemical safety in the laboratory. Each PI, supervisor, or other responsible person designated by the PI is responsible for the safety of individuals working under their direction in their assigned laboratory. PIs must work closely with RMS to implement safety provisions outlined in the LSM.

They should also ensure that:

- Each individual working in their lab is provided with appropriate safety training
- Each individual working in their lab follows all applicable federal, state and local regulatory requirements
- Safety equipment is used to reduce potential exposure to hazardous chemicals
- Appropriate Personal Protective Equipment (PPE) is provided, maintained and used.
- Specific safety considerations or specific safety procedures (SOP) are developed and observed
- Prompt action is taken to correct observed or reported unsafe conditions and actions
- Ensuring that chemical waste is managed properly (collection, labelling, storage and disposal)
- Informing Auburn University personnel (i.e. AU Facilities, AU Maintenance, etc..) and contractors who service and maintain the laboratory of the potential hazards and safety precautions that should be observed
- Informing visitors who enter the lab of the potential hazards and safety precautions.
- Restricting access to non-authorized personnel and ensuring securing hazardous materials kept within a laboratory.
- Ensuring accuracy of chemical inventories of their laboratories.
- Reporting injuries of laboratory personnel or visitors to the Auburn University Department of Risk Management and Safety on the job injury program: <https://cws.auburn.edu/rms/pm/injuryprogram>.

1.2.4 Laboratory Personnel

Laboratory Personnel are employees, AU students, visiting students, volunteers in the Principal Investigator's/Supervisor's laboratory that are responsible for implementing all the requirements of the LSM.

These include:

- Participating in all required safety training.
- Using appropriate safety equipment and PPE.
- Understanding and observing all safety considerations or standard operating procedures.
- Informing the PI/supervisor or RMS of any near-misses, accidents or unsafe acts and conditions.
- Following all applicable federal, state, and local regulatory requirements.
- Informing visitors who enter the lab of the potential hazards and safety precautions.
- Reporting injuries to the Auburn University Department of Risk Management and Safety on the job injury program <https://cws.auburn.edu/rms/pm/injuryprogram>.

1.3 Definitions

1.3.1 Laboratory

For the purposes of this LSM, a laboratory is defined as a facility in which hazardous chemicals are handled or manipulated in reactions, transfers, etc. in small quantities on a non-production basis. This definition is taken from the Occupational Safety and Health Administration (OSHA) standard.

1.3.2 Hazardous Chemical

The OSHA Laboratory Safety Standard defines a hazardous chemical as any element, chemical compound, or mixture of elements and/or compounds which is a physical hazard or a health hazard. Auburn University applies this definition to all hazardous chemicals regardless of the quantity.

A chemical is a physical hazard if there is scientifically valid evidence that it is a combustible liquid, a compressed gas, explosive, organic peroxide, an oxidizer, or is pyrophoric, flammable, or reactive.

A chemical is a health hazard if there is statistically significant evidence, based on at least one study conducted in accordance with established scientific principles that acute or chronic health effects may occur in exposed people.

Health hazards include:

- Toxic Agents
- Highly Toxic Agents
- Reproductive Hazards
- Mutagens
- Sensitizers
- Hepatotoxins
- Hematopoietic toxins
- Irritants
- Carcinogens
- Corrosives
- Asphyxiates
- Neurotoxins
- Nephrotoxins

In most cases, the chemical container's original label will indicate if the chemical is hazardous. Look for key words like **caution, hazardous, toxic, dangerous, corrosive, irritant, carcinogen**, etc. Note that containers of hazardous chemicals acquired or manufactured before 1986 may not contain appropriate hazard warnings.

If you are not sure a chemical you are using is hazardous, review the **Safety Data Sheet (SDS)** for the substance or contact your supervisor, PI, or Risk Management and Safety.



1.4 Hazard Identification

Some laboratories will synthesize or develop new chemical substances during the course of their research. If the composition of the substance is known and will be used exclusively in the laboratory, the researcher must label the substance and determine, to the best of his/her ability, the hazardous properties (e.g. corrosive, flammable, reactive, toxic, etc.) of the substance. This can sometimes be done by comparing the structure of the new substance with the structure of similar materials with known hazardous properties. If the chemical produced is of unknown composition, it must be assumed to be hazardous, and appropriate precautions should be taken. If a chemical substance is produced for another user outside of the University, the laboratory producing the substance is required to provide as much information as possible regarding the identity and known hazardous properties of the substance to the receiver of the material. Contact RMS if you have questions or would like assistance in meeting this obligation.

1.5 Medical Consultation and Examination

Employees who work with chemicals should seek medical consultation/examination whenever:

- They develop signs or symptoms associated with excessive exposure to a hazardous chemical to which they may have been exposed to in their laboratory.
- There is a likelihood of chemical exposures resulting from spills, leaks, explosions or other events occurring in the laboratory

Exposure monitoring (for substances that are monitored) reveals an exposure level routinely above the action level (or in the absence of an action level, the applicable workplace permissible exposure limit, PEL)

Medical services are available to Auburn University students, faculty and staff at:

Auburn University Medical Clinic
400 Lem Morrison Dr, Auburn, Alabama
Phone: 334 844 4416

East Alabama Medical Center (EAMC)
2000 Pepperell Pkwy, Opelika, Alabama
Phone: 334-749-3411

1.6 Laboratory Inspection Program

RMS conducts annual inspections of all University laboratories handling or storing hazardous materials, including chemical and biological materials.

These inspections evaluate

1. The Status of Critical Control Equipment (Hoods)
2. Microbiological Practices and The Handling and Storage of Chemicals
3. Use of Personal Protective Equipment
4. Waste Disposal
5. Laboratory Personnel Training
6. Compliance with Federal/State Regulations and University Policies

More frequent inspections may be established for laboratories working with higher risk materials. Department chairs, designated safety representatives and/or committees (as directed by the department chairperson) may receive inspection summary reports for their department. Lab inspections are managed in [BioRAFT Research Management Platform](#). Note that laboratories that use radioactive materials are inspected on a more frequent basis by the AU Radiation Safety Program.

