

# LABORATORY SAFETY - CHEMICAL HYGIENE PLAN

## Program Element

### [R2-10-207\(10\)\(b\)](#)

An agency Industrial Hygiene Program shall include a Laboratory Safety and Chemical Hygiene Plan element when applicable.

The Occupational Safety and Health Administration (OSHA) defines “laboratory” as a facility where the “laboratory use of hazardous chemicals” occurs. It is a workplace where relatively small quantities of hazardous chemicals are used on a non-production basis, not as part of a production process, nor simulating a production process (29 CFR 1910.1450, OSHA).

<b>Definition:</b>	<p>A <b>Laboratory Safety Program</b> includes safety procedures and training for laboratory personnel handling chemicals beginning with ordering and ending with disposal.</p> <p>A <b>Chemical Hygiene Plan (CHP)</b> is a written program developed and implemented by the agency that establishes procedures, equipment, personal protective equipment, and work practices that are capable of protecting employees from the health hazards presented by hazardous chemicals used in a laboratory environment.</p>
<b>Why do I need this program?</b>	The Laboratory Safety Program and Chemical Hygiene Plan (CHP) Is intended to protect employees and employers from loss associated with occupational exposure and environmental impacts to hazardous chemicals that are stored, handled, and disposed of as a result of laboratory operations.
<b>How do I know if this program applies to my agency and my specific job hazards?</b>	OSHA defines the laboratory use of hazardous chemicals in a setting where <b>all</b> of the following conditions are met:

- Laboratory-scale chemical manipulations;
- Multiple chemical procedures or a variety of chemicals are used;
- Not part of a production process, nor simulates a production process; and
- “Protective laboratory practices and equipment” are available and consistently used.

**What are the minimum required elements and/or best practices for a Laboratory Safety Plan?**

The Laboratory standard consists of five major elements:

- Hazard identification;
- Chemical Hygiene Plan;
- Information and training;
- Exposure monitoring; and
- Medical consultation and examinations.

**Hazard Identification**

Agencies must identify hazards associated with chemicals used in laboratories by obtaining Safety Data Sheets and then assessing physical and/or health threats to workers.

**Chemical Hygiene Plan**

An effective CHP incorporates the following essential elements:

- Minimizing exposure to chemicals by establishing procedures for prioritizing the hierarchy of controls. *Examples:* Engineering controls (fume hoods, ventilation), administrative controls (Standard Operating Procedures, exposure limitations, training), and PPE (gloves, eye protection).
- Regularly monitoring the work environment for chemical levels to identify conditions requiring action or medical attention.
- First aid procedures for lab-related exposures, including decontamination facilities (showers, eyewash stations) and clearly defined emergency response protocols. Following immediate first aid, procedures for accessing professional medical care must be readily available.
- All processes within the Chemical Hygiene Plan (CHP) must have clearly defined, written procedures to ensure consistent and effective implementation.
- Detailed procedures for administering the CHP must be clearly specified. Designated personnel are responsible for developing and implementing specific plans for procuring and handling Safety Data Sheets (SDS), organizing training sessions, monitoring employee work practices, and conducting the annual review and revision of the CHP.
- Comprehensive information and training regarding chemical hazards and safety procedures must be provided to all employees.
- Effective record maintenance of chemical inventories, monitoring results, training sessions, incident reports, and other relevant documentation, as mandated by applicable regulations.

<p><b>Are there any mandatory training requirements or best practices that must be developed by the agency?</b></p>	<p>Employees must be informed of the following:</p> <ul style="list-style-type: none"> <li>• OSHA standard 29CFR 1910.1450, and its appendices, contents, and availability.</li> <li>• Container labeling, Safety Data Sheets (GHS).</li> <li>• The location and availability of the CHP.</li> <li>• The Permissible Exposure Limits or recommended exposure limits.</li> <li>• Signs and symptoms associated with exposures to hazardous chemicals.</li> <li>• The location and availability of reference material on the hazards, safe handling, storage, and disposal of hazardous chemicals including, but not limited to, Safety Data Sheets received from the chemical supplier.</li> </ul> <p>Employee Training shall include:</p> <ul style="list-style-type: none"> <li>• Methods and observations that may be used to detect the presence or release of a hazardous chemical.</li> <li>• Physical and health hazards of chemicals.</li> <li>• Appropriate work practices, emergency procedures, and personal protective equipment to be used.</li> <li>• The circumstances requiring prior approval from the agency before implementation.</li> </ul> <p>State Risk Management offers training on a variety of safety and risk-related topics through the <a href="#">State's Employee Learning Portal</a> (use the keywords "Loss Prevention" to search the Library for additional topics).</p>
<p><b>Are there specific requirements for documenting the program, training, etc...?</b></p>	<p><b>Exposure records:</b></p> <ul style="list-style-type: none"> <li>• Notify employees, within 15 days after receipt, of any monitoring results.</li> <li>• Maintain records for 30 years.</li> </ul> <p><b>Medical records:</b></p> <ul style="list-style-type: none"> <li>• Maintain for the duration of employment plus 30 years.</li> </ul> <p><b>SDS or Utilization Log retention:</b></p> <ul style="list-style-type: none"> <li>• Maintain records for 30 years.</li> </ul> <p>All training should be documented either in paper format, electronic means, or via the <a href="#">State's Employee Learning Portal</a>. Maintain program documents, training materials, and attendance rosters according to the Arizona State Library, Archives and Public Records general retention schedules, <a href="#">LAPR - Retention Schedules</a>.</p>

**Are there any resources available that can assist me in putting together a Laboratory Chemical Hygiene Plan?**

State Risk Management has Loss Prevention Consultants available to assist managers and supervisors in identifying potential hazards and guide agencies on the establishment of program elements. For assistance, contact State Risk Management Loss Prevention at [rmdlossprevention@azdoa.gov](mailto:rmdlossprevention@azdoa.gov).

The sample [Laboratory Chemical Hygiene Plan Template](#) may be tailored to an agency's needs when developing the agency's program. Other sample programs to reference include the [UofA Chemical Hygiene Plan](#) and the [National Institutes of Health Chemical Hygiene Plan](#).

#### **Additional Resources**

- The [OSHA Standard 1910.1450](#), Occupational Exposure to Hazardous Chemicals in Laboratories.
- OSHA 3404-11R (2011) [Laboratory Safety Guidance](#)
- The National Research Council's "Prudent Practices in the Laboratory: Handling and Management of Chemical Hazards, Version 2011" is referenced in Appendix A of 29 CFR 1910.1945:  
<http://www.nap.edu/catalog/12654/prudent-practices-in-the-laboratory-handling-and-management-of-chemical>
- The Laboratory Safety Institute:  
<https://www.labsafety.org/resource>
- American Chemical Society:  
<portal.acs.org/portal/acs/corg/content>
- The NIOSH Pocket Guide to Chemical Hazards:  
[www.cdc.gov/niosh/npg/pgintrod.html](http://www.cdc.gov/niosh/npg/pgintrod.html)