

Part C: Chemical and Environmental Safety Laws

OSHA Standards for Specific Chemicals/**2C**

OSHA Laboratory Standard/**3C**

Pesticides/**4C**

Storage and Use of Flammable Liquids/**5C**

Chemical Disposal Laws/**5C**

Sanitary Sewer Use/**6C**

Chemical Spill and Release Laws/**7C**

Spill Cleanup and Soil Contamination/**9C**

Other Environmental Laws/**9C**

Nonpoint Source Discharge/**10C**

Polychlorinated Biphenyls (PCBs)/**10C**

Many regulations and codes affect the use, storage, and disposal of chemicals in UWL laboratories. This part is a brief overview of some of the requirements. This part is divided into four categories:

- **Chemical Safety Laws** that pertain to the safe use and storage of chemicals in laboratories.
- **Chemical Disposal Laws** that cover the disposal of chemicals and chemical wastes, including disposal into the sanitary sewer.
- **Chemical Spill and Release Laws** that require prevention, response planning, and notification of chemical spills or releases to the environment.
- **Other Environmental Laws** that pertain to routine or incidental releases of chemicals to the environment.

These laws include federal, state, and local rules and regulations. The Occupational Safety and Health Administration (OSHA), as well as the Environmental Protection Agency (EPA) administer many of these laws. Several State of Wisconsin agencies, such as the Department of Natural Resources, assist with enforcing these laws in Wisconsin. Locally, the City of La Crosse Fire Department enforces fire codes, and the La Crosse Wastewater Treatment Plant regulates the use of the sanitary sewer.

Numerous consensus standards and codes are incorporated by reference into regulations. This practice mandates UWL to comply with these additional requirements. The National Fire Protection Association (NFPA) and American National Standards Institute (ANSI) are two examples of these type organizations.

In some cases, a state agency has been authorized to enforce a federal law.

Environmental Health and Safety is responsible for submission of environmental reports, investigating complaints, and acting as the University's regulatory contact for inspectors on

campus. These guidelines will help you understand and comply with these laws. Compliance with these laws requires your cooperation.

Noncompliance with these laws can be a very serious matter. Some laws allow for civil and criminal penalties. Some laws allow citizens and organizations to sue for compliance, without the involvement of a government agency. If you use chemicals or are responsible for people who do, in some cases you can be held personally liable. It is important that we work together to ensure the safe use, storage, and disposal of chemicals. We can achieve a high level of safety by complying with these laws.

If you have a question about compliance with chemical and environmental safety laws, or know of a potential compliance problem, contact Environmental Health and Safety.

Chemical safety laws are those that govern the use and storage of laboratory chemicals, including the chemical exposure of laboratory personnel.

OSHA STANDARDS FOR SPECIFIC CHEMICALS

The Occupational Safety and Health Administration (OSHA) has developed comprehensive standards for several chemicals, as listed in Chemicals that have a Specific OSHA Standard section of Part D. To prevent exposure to personnel, these standards cover all aspects of the use of these chemicals. Based on potential common use in campus laboratories, the specific standards for formaldehyde (used as formalin for preservation of tissue samples) and methylene chloride are of particular concern.

Chemicals for which a Substance Specific Standard exists are listed in Part D of this [Guide](#).

How Environmental Health and Safety Helps You Comply

Environmental Health and Safety helps you comply with these laws by:

- Upon request, evaluating potential for exposure controls, and work practices.
- Assist you to improve controls (e.g., ventilation) and work practices to minimize exposures.
- When necessary, monitoring laboratory personnel for exposure to these chemicals.

How You Can Comply

You can comply with OSHA substance specific standards by:

- Determining if your laboratory uses any substance covered by a specific standard.
- Reviewing information on the substance specific standards in Part D of this [Guide](#). The complete standards are available from Environmental Health and Safety or through OSHA's website.
- Reporting suspected exposures to your principal investigator or supervisor.
- Consulting with the Environmental Health and Safety or Risk Management offices if you need help to comply with a standard.

OSHA LABORATORY STANDARD

The Occupational Safety and Health Administration (OSHA) regulates exposure of laboratory personnel to hazardous chemicals. This law, "Occupational Exposures to Hazardous Chemical in Laboratories," is often referred to as the OSHA Laboratory Standard. The OSHA Laboratory Standard is discussed in detail in Appendix B: Understanding OSHA's Laboratory Standard. Appendix C is a template to help you write a Chemical Hygiene Plan for your laboratory.

Every laboratory must have a written Chemical Hygiene Plan.

How Environmental Health and Safety Helps You Comply

This Laboratory Safety and Chemical Disposal Guide will help you comply with the OSHA Laboratory Standard. Other Environmental Health and Safety services that can help you comply with this rule include:

- Environmental Health and Safety is the UWL repository for Safety Data Sheets (SDS's). If you cannot obtain an SDS from your supplier, contact Environmental Health and Safety for a copy.
- Environmental Health and Safety office will help you write your Chemical Hygiene Plan by providing samples and advice.
- On request, Environmental Health and Safety will conduct laboratory safety training sessions.
- When necessary, Environmental Health and Safety can conduct air monitoring to determine chemical exposure levels and evaluate exhaust hoods for proper operation.

Refer to Appendix B for more information about the OSHA Lab Standard.

How You Can Comply

Principal investigators and laboratory personnel have responsibilities to comply with this OSHA law. These compliance responsibilities have been described in Appendix B: Understanding OSHA's Laboratory Standard. In summary, principal investigators, laboratory directors, managers, and supervisors must:

- For you and laboratory personnel under your direction, keep chemical exposures below OSHA limits.
- Write a Chemical Hygiene Plan for your laboratory; Appendix C is a template for a Chemical Hygiene Plan.
- Designate yourself or someone else as the laboratory's person responsible for implementing the Chemical Hygiene Plan.
- Train and inform your new personnel as described in Appendix B and Appendix G.
- In certain circumstances, provide your laboratory personnel with access to medical consultations and examinations.

Appendix C of this Guide is a Chemical Hygiene Plan template.

Laboratory personnel must comply with the law by:

- Following the procedures described in your laboratory's Chemical Hygiene Plan.
- Keep labels on manufacturer provided chemical containers intact and label all secondary chemical containers. If possible, secondary container labels need to include the chemical

name, manufacturer name, and generic hazard warning (i.e., corrosive, flammable, toxic). Contact Environmental Health and Safety to discuss alternative labeling allowances for small containers, test tube racks, samples, and similar containers.

- Read the Safety Data Sheets of all your supplied chemicals prior to use.
- Laboratory personnel should inform their principal investigator or supervisor if they have any signs and symptoms of chemical exposure.

PESTICIDES

Federal law requires that pesticides be used and disposed according to label instructions. This requirement pertains to all insecticide, fungicide, herbicide, and other pesticide use in greenhouses, growth chambers, and field studies. Application of restricted pesticides requires that the applicator be certified by the Wisconsin Department of Agriculture, Trade, and Consumer Protection.

Read the label and other supplied safety information prior to using any pesticide.

How You Can Comply

You can comply with pesticide laws through the following practices.

- Only using pesticides according to the manufacturer's instructions and label instructions.
- If you use a respirator, comply with OSHA laws that require a medical examination and a fit test. Call Environmental Health and Safety to participate in the UWL respiratory protection program.
- Avoid pesticide exposure by using the chemical hygiene practices described in Part D. Keep personal items separate from, gloves, respirators, and other personal protective equipment. Wash your hands often: at minimum wash at time of glove removal, when you are done working with the materials, and prior to eating.
- Avoid pesticide exposures by using engineering controls described in Part D; do all mixing in a fume hood or other well ventilated area.
- Only acquire the amount of pesticide you need in the immediate future; do not accept gifts, samples, or purchase excessive amounts.
- Store pesticides in a ventilated area that will contain leaks and spills. Clean up spills promptly according to procedures in Part E of this Guide.
- Mark stored pesticide containers with purchase date; review inventories regularly to dispose of surplus and waste.
- Dispose surplus solutions and rinsate by using it appropriately at application rates; prepare mixtures carefully to avoid surpluses.

Do not use a pesticide without using, at a minimum, safety glasses, chemical goggles if a splash hazard exists, and gloves. Part D of this Guide describes safe chemical use practices in detail.

Environmental Health and Safety will dispose of your waste pesticides at no cost to you. Follow procedure On-Site Service 1 in Part G of this Guide.

STORAGE AND USE OF FLAMMABLE LIQUIDS

The National Fire Protection Association (NFPA) has established a standard for the storage and use of flammable liquids in laboratories. This standard has been adopted by the Wisconsin Department of Safety and Professional Services and is enforced by the City of La Crosse Fire Department.

This standard protects life and property from fire. Your compliance is necessary to protect yourself, your work, your coworkers, and other building occupants.

Safety and compliance with flammable liquids laws should be a concern of all building occupants. One careless person can jeopardize the safety and work of an entire building.

How Environmental Health and Safety Helps You Comply

Environmental Health and Safety helps UWL comply with this law by:

- Monitoring the storage and use of flammable liquids in laboratories.
- Advising laboratory staff on ways to comply with this law.
- If necessary, proposing health and safety projects to improve flammable liquid storage facilities.

When not in use, store flammable liquids in a flammable liquid storage cabinet.

How You Can Comply

You can comply with this NFPA standard following the guidelines in the Storage of Flammable and Combustible Chemicals section of Part D. In summary, the law requires:

- For laboratory storage of flammable liquids outside of safety cans and flammable liquid storage cabinets, limit the amount to less than 10 gallons (38 liters) of flammable liquids per laboratory and/or storage room.
- Use flammable liquid storage cabinets for storing flammable liquids that exceed 10 gallons total volume in any laboratory.
- Maximum sizes for storage containers in laboratories is 1 gallon (3.8 liters) for glass containers and 2 gallons (7.6 liters) for safety cans.

CHEMICAL DISPOSAL LAWS

Federal, state, and local laws strictly regulate the disposal of laboratory chemicals, including the disposal of chemicals in the sanitary sewer. In general, you can ensure compliance with these laws by following the laboratory chemical disposal procedures in Part G: Chemical Disposal Procedures and Appendix A: Disposal Procedure by Chemical.

Chemical Hazardous Waste Disposal

The Environmental Protection Agency (EPA) and the Wisconsin Department of Natural Resources (DNR) closely regulate the disposal of hazardous chemicals. Their laws are described in detail in Appendix H: EPA's Hazardous Waste Laws.

What Environmental Health and Safety Does to Comply

The Environmental Health and Safety office maintains the University's compliance as follows:

- Maintaining and operating UWL's hazardous waste accumulation facility.
- Transporting hazardous waste to UWL's on-site accumulation facility.
- Arranging and administering the environmentally sound transport, treatment, and disposal of UWL's hazardous waste.
- Submitting reports and manifests to the Wisconsin DNR that describe the quantity of all hazardous waste generated and the disposition of all hazardous wastes.

Removal of hazardous waste is a service provided by Environmental Health and Safety at no cost to you. In special cases where departments have not been responsible managers of chemicals, charge backs have occurred.

How You Can Comply

To comply with EPA and DNR hazardous waste laws, laboratory personnel must:

- Follow chemical disposal procedures in Part G and Appendix A of this Guide.
- Ensure that all hazardous waste containers stored in their laboratory are securely capped except when waste is being added.
- On a hazardous waste label, original chemical manufacturer label, or secondary chemical label, describe chemicals to be removed by Environmental Health and Safety.
- Do not dispose of any quantity of chemical or unemptied chemical container in the normal trash unless specifically approved in this Guide.
- Do not dispose of any waste by evaporation or other release to atmosphere unless approved by Environmental Health and Safety.

In addition, compliance is facilitated by your efforts to prevent pollution and minimize chemical wastes, as described in Part F: Waste Minimization and Pollution Prevention.

Keep caps on containers. Do not dispose of waste by evaporation or other release to atmosphere.

SANITARY SEWER USE

Disposal of chemicals and chemical wastes in the sanitary sewer is regulated The City of La Crosse wastewater discharge ordinance. Several procedures for the disposal of chemicals and chemical wastes have been developed for prudent use of the sanitary sewer for disposal. These procedures are explained in detail in Part G: Chemical Disposal Procedures. Chemicals suitable for disposal are listed, alphabetically, in Appendix A.

Only dispose in the sanitary sewer those laboratory chemicals identified in Part G and Appendix A.

How Environmental Health and Safety Helps You Comply

Environmental Health and Safety helps UWL comply with the City of La Crosse wastewater discharge ordinance by:

- Establishing procedures in Part G and Appendix A of this Guide that comply with local ordinances.
- Agreeing with the City of La Crosse wastewater treatment plant on the criteria for environmentally sound disposal of laboratory chemicals in the sanitary sewer.
- For special cases of potential sanitary sewer use, determine safe chemical disposal procedures in consultation with City of La Crosse wastewater treatment plant.

How You Can Comply

You can help comply with the Wastewater Discharge Ordinance by:

- Following the chemical disposal procedures detailed in Part G of this Guide.
- Using the sanitary sewer to dispose of only those materials identified in Appendix A and Part G.
- For laboratory chemicals that have an established limit see procedure Sanitary Sewer 6 in Part G of this Guide. Make sure you are using a sanitary sewer, not a storm sewer; all sewers and drains outside of a building are storm sewers.
- If you are working off campus and you are connected to a sanitary sewer or other wastewater system, contact Environmental Health and Safety for sewer use guidelines.

CHEMICAL SPILL AND RELEASE LAWS

Several federal and state laws address chemical spills, accidental releases, and other chemical emergencies. University Police in consultation with Environmental Health and Safety Office have established chemical emergency procedures for preparedness, response, and reporting. Part E: Emergency Procedures, more thoroughly describes the notification procedures. This Part also defines how you can prevent and respond to chemical emergencies in your laboratory.

Chemical Spill and Release Notification

Federal and State of Wisconsin chemical spill and release laws are complex. To ensure compliance, you should inform Environmental Health and Safety of any of the following circumstances. Under these laws notification is:

- Usually required if a chemical is spilled and may affect the environment in any way.
- Usually required if toxic gases are accidentally or through an emergency released to the atmosphere or a ventilation system that leads to the outside.
- Usually required if the spill or release results in an exposure to personnel.
- Usually required if the La Crosse Fire Department's Hazardous Incident Team responded and initiated cleanup.

Because of the complexity of these laws, please report all chemical spills and releases to University Police (in an emergency) or the Environmental Health and Safety office (for non-emergency). Environmental Health and Safety will determine what is necessary to ensure regulatory compliance.

Report all chemical spills and releases to the Environmental Health and Safety office.

What Environmental Health and Safety Does to Comply

Environmental Health and Safety office helps UWL comply with these laws by:

- Determining safe response procedures in the event of a chemical emergency and coordinating response efforts.
- Determining legal reporting and response requirements in the event of a chemical emergency, and complying with those rules.
- Submitting required notifications and reports to federal, state, and local agencies.
- Planning for UWL chemical emergency response with University Police, the La Crosse Fire Department's Hazardous Incident Team, and the Local Emergency Planning Committee.
- Arranging for chemical emergency response and cleanup services.
- Advising laboratory personnel on preparedness and response to chemical emergencies.

The La Crosse Fire Department's Hazardous Incident Team responds to serious spills on campus. The Fire Department does not cleanup spills. UWL would call in a State contracted emergency response service provider to cleanup a serious spill. If a spill is small (consistent with normal volumes of chemical in use), does not create an airborne hazard requiring respirator use, and personnel are familiar with material hazards, then personnel within the laboratory where the spill occurs can clean up the spill. Environmental Health and Safety does not clean up chemical spills, but will provide advice or direct assistance.

How You Can Comply

You can help comply with these laws by:

- Notifying University Police of any chemical spill, accidental release, and other chemical emergency by dialing 789-9999. University Police will activate the emergency response plan and inform Environmental Health and Safety.
- Contact Environmental Health and Safety if you have questions about reporting a chemical spill or release.
- Preventing and preparing for chemical emergencies, as described in Part E: Emergency Procedures.
- Consulting with Environmental Health and Safety if you are planning work that could result in a chemical spill or release to the environment. We can work together to determine prevention and control measures.

As described in Part E, laboratory personnel are responsible for the cleanup of simple spills. Environmental Health and Safety has provided spill kits to all laboratories. Contact Environmental Health and Safety to request additional kits or replenishment of kit contents.

SPILL CLEANUP AND SOIL CONTAMINATION

Spill cleanup often requires specialized materials, equipment, and techniques. In addition, federal and state standards have been established for residual chemical contamination. This is especially true for spills that result in soil contamination, or other releases to the environment.

Contact Environmental Health and Safety if you discover a chemical spill, leak, or soil contamination.

What Environmental Health and Safety Office Does to Comply

Environmental Health and Safety office helps UWL comply with these laws by:

- Identifying instances of chemical contamination.
- Determining cleanup requirements and standards.
- Managing projects to assess and cleanup chemical contamination.

Contact Environmental Health and Safety if you discover chemical contamination. We will work with you to ensure that cleanup measures are safe and meet legal standards.

OTHER ENVIRONMENTAL LAWS

Other environmental laws regulate air emissions from laboratories, the import and export of chemicals (including samples), and laboratory use of polychlorinated biphenyls.

Air Emissions from Laboratories

Federal and state laws request UWL to keep air emissions from laboratories as low as reasonably achievable.

Volatile organic solvents are a source of air emissions. UWL needs your help to minimize these releases.

How You Can Help

You can help reduce laboratory air emissions by following the suggestions given in Part F: Pollution Prevention and Waste Minimization, such as:

- Substitute toxic organic solvents with less toxic materials.
- Minimize the amount of volatile chemicals you buy, store, and use.
- Reduce routine leaks and evaporation by keeping containers capped and sealing experiments and systems as much as possible.
- Do not intentionally evaporate any chemical.

Chemical Import and Export

The Environmental Protection Agency (EPA) and the U.S. Customs Office require all chemicals (including chemical samples) imported into or exported out of the U.S. to be certified. The type of certification required depends if the chemical is listed by EPA under the Toxic Substances Control Act (TSCA). Contact Environmental Health and Safety for assistance with completing these forms.

International shipments of chemical samples require a TSCA certification.

Environmental Impact Statements

Certain field research or studies may be subject to the requirements of the Wisconsin Environmental Policy Act (WEPA). For "major actions significantly affecting the quality of the human environment", WEPA requires:

- Consultation with agencies that have jurisdiction or special expertise with respect to the environmental impact involved.

- The proposals include a detailed statement on the environmental impact of the proposed action, adverse environmental effects, alternatives, and other information.
- A public hearing, preceded by a public notice.

Contact Environmental Health and Safety for additional information on the law, for help in determining requirements, and assistance in preparing an environmental impact statement.

NONPOINT SOURCE DISCHARGES

Laboratory sinks and drains discharge to the sanitary sewer, and are subject to the La Crosse Wastewater Discharge Ordinance as described above. Be aware, however, that outdoor drains and sewers (i.e., storm sewers) discharge to the La Crosse River and are subject to more stringent disposal limits for nonpoint source discharges. U.S. Environmental Protection Agency nonpoint source discharge laws also apply to wastewater discharges during field research and studies, and outdoor spills and leaks, such as those at loading docks.

Nonpoint source discharges refers to contaminants that do not enter the sanitary sewer or other wastewater collection systems, and usually enter rivers and lakes via the storm sewer. Nonpoint source pollution can harm water quality.

What Environmental Health and Safety Does to Comply

Environmental Health and Safety helps UWL comply with this law by:

- Sampling and studying storm sewer and other nonpoint source discharges generated from campus operations.
- Facilitating campus programs to prevent and cleanup spills, and minimize the use of hazardous chemicals.

How You Can Help

You can help us comply with this law by:

- Not using outdoor drains or storm sewers for waste disposal.
- Promptly cleaning any chemical spills or leaks.
- Notifying Environmental Health and Safety of any chemical spills, leaks, or releases.
- Consulting with Environmental Health and Safety for wastewater disposal procedures when the sanitary sewer is not available.

POLYCHLORINATED BIPHENYLS (PCB's)

Because of its environmental toxicity, the manufacture and most uses of PCB's is banned in the United States. The Environmental Protection Agency strictly regulates the use and disposal of polychlorinated biphenyls (PCB's), including any transformers, capacitors, or other electrical equipment that contains PCB's. Universities have been fined for noncompliance with this law. UWL has eliminated most known sources of PCB's.

If you work with PCB's or PCB-containing material, contact Environmental Health and Safety.

What Environmental Health and Safety Does to Comply

Environmental Health and Safety efforts to comply with this law include:

- With the help of Facilities Planning and Management, tests electrical equipment, oils, and other liquids for PCB's.
- Arranging for and supervising the environmentally sound transport, treatment, and disposal of PCB's.
- Monitoring EPA's use and storage prohibitions for PCB's.

How You Can Comply

You can comply with this law by:

- Reporting any PCB transformer or PCB capacitor greater than nine pounds (i.e., contains more than three pounds of PCB's) to Environmental Health and Safety.
- If you have electrical equipment or other chemicals that may contain PCBs, contact Environmental Health and Safety for an evaluation. In some cases, chemical analysis may be required.
- If you use any quantity of PCB's not contained in electrical equipment, contact Environmental Health and Safety for an evaluation of the legal requirements. Some research uses of PCB's may require an exemption from the EPA.
- All PCB and PCB-containing equipment must be disposed through Environmental Health and Safety.

If you suspect that, a liquid or an item contains PCB's, contact Environmental Health and Safety. Environmental Health and Safety may test the material at no cost to you.

REVIEW QUESTIONS

1. The primary purpose of the OSHA Laboratory Standard is to:
 - a) protect human health and the environment.
 - b) help prevent laboratory accidents.
 - c) protect individuals who work with laboratory chemicals.
 - d) identify specific standards for laboratory construction.
2. Laboratory workers can help UWL comply with chemical disposal laws by:
 - a) keeping waste solvent collection carboys capped.
 - b) monitoring their exposure to certain, specified chemicals.
 - c) reporting all releases to the environment to Environmental Health and Safety.
 - d) contacting Environmental Health and Safety if they intend to ship research materials internationally.
3. You can help comply with City of La Crosse wastewater discharge ordinance by:
 - a) disposing of any unwanted chemicals in the sanitary sewer.
 - b) using the sanitary sewer for disposal of items only listed in Appendix A or Part G of this Guide.
 - c) not disposing of any chemical in the sanitary sewer.
 - d) reporting all releases to Environmental Health and Safety.
4. To comply with chemical spill laws:
 - a) releases greater than 1 gallon need to be reported to the Wisconsin Department of Natural Resources (DNR).
 - b) releases greater than 1 gallon and smaller than 10 gallons must be reported to the U.S. Environmental Protection Agency (EPA).
 - c) releases to the environment are to be reported to Environmental Health and Safety.
 - d) any release that harms an individual must be reported to the Wisconsin Department of Natural Resources (DNR).
5. An Environmental Impact Statement may be required if you:
 - a) do research or field studies that may have an impact on the environment.
 - b) report a release to the environment.
 - c) work with PCB's or PCB-containing materials.
 - d) use large quantities of chemicals.

ANSWERS

1. c) protect individuals who work with laboratory chemicals.
2. a) keeping waste solvent collection carboys capped.
3. b) using the sanitary sewer for disposal of items only listed in Appendix A or Part G of this Guide.
4. c) releases to the environment are to be reported to Environmental Health and Safety.
5. a) do research or field studies that may have an impact on the environment.