

# University of Wisconsin- Milwaukee

## Chemical Hygiene Plan

### Chapter 1 - Introduction

#### 1. Purpose

The University of Wisconsin- Milwaukee Chemical Hygiene Plan (CHP) is intended to cover and provide guidelines for individuals working in the campus laboratory community. The laboratory supervisors or individual departments may produce standard operating procedures to accompany this CHP or choose to customize this CHP to suit their individual needs and more accurately portray the hazards and controls of their laboratories. This CHP describes policies, procedures, equipment, personal protective equipment, and work practices that are capable of protecting laboratory personnel from the health hazards in laboratories. This CHP is intended to meet the requirements of the federal Occupational Safety and Health Administration (OSHA) Laboratory Safety Standard, also known as "[Occupational Exposure to Hazardous Chemicals in Laboratories](#)" (Appendix A). The Laboratory Safety Standard is adopted by Wisconsin Department of Commerce (DCOM) in [Chapter Comm 32](#). This CHP also addresses the federal [Toxic Substance Control Act \(TSCA\)](#).

This CHP is intended to safely limit laboratory workers' exposure to harmful chemicals. Laboratory workers must not be exposed to substances in excess of the permissible exposure limits (PEL) specified in OSHA rule 29 CFR 1910, [Subpart Z, Toxic and Hazardous Substances](#). PELs for regulated substances are provided in [Appendix B](#) or at the University of Wisconsin System, Office of Safety and Loss Prevention's "[The Wisconsin PELs](#)" web page. PELs refer to airborne concentrations of substances and are averaged over an eight-hour day. Compounds with individual standards generally have "action limits" (usually set at half the Threshold Limit Value). Action levels are air concentrations below the PEL and require that certain actions such as medical surveillance and workplace monitoring take place. A lab worker's workplace exposure to any regulated substance must be monitored if there is reason to believe that the exposure will exceed an action level or a PEL. If exposures to any regulated substance routinely exceed an action level or permissible exposure level, there must also be laboratory personnel medical exposure surveillance. Please refer to the [individual chemical standards](#) for details.

OSHA regulations require employers to evaluate their workplaces for the presence of hazardous substances, harmful physical agents, and infectious agents and to provide training to laboratory personnel concerning those substances or agents to which laboratory personnel may be exposed. Written information on agents must be readily accessible to laboratory personnel or their representatives. Laboratory personnel have a conditional right to refuse to work if assigned to work in an unsafe or unhealthful manner with a hazardous substance, harmful physical agent, or infectious agent. Labeling requirements for containers of hazardous substances and equipment or work areas that generate harmful physical agents are also included in the OSHA standards.

Toxic Substances Control Act (TSCA) requires that prudent laboratory practices be developed and documented for research involving new chemicals that have not had their health and environmental hazards fully characterized. Laboratories engaged in research must consider the applicability of the Toxic Substances Control Act (TSCA) on their operation. TSCA, administered by the U.S. Environmental Protection Agency (EPA) under the [New Chemicals Program](#), is intended to ensure that the human health and environmental effects of chemical substances are identified and adequately addressed prior to commercial use or transport of those substances. A new chemical is a chemical substance that is produced or imported and not yet listed on the TSCA Chemical Substance Inventory. Each laboratory or research group that synthesizes or imports new chemicals must determine if and how TSCA applies to their laboratory activities – see [Appendix D](#).

## 2. Scope and Application

The Laboratory Safety Standard applies where 'laboratory use' of hazardous chemicals occurs. Laboratory use of hazardous chemicals means handling or use of such chemicals in which all of the following conditions are met:

- i. the handling or use of chemicals occurs on a 'laboratory scale', that is, the work involves containers which can easily and safely be manipulated by one person;
- ii. multiple chemical procedures or chemical substances are used; and
- iii. protective laboratory practices and equipment are available and in common use to minimize the potential for laboratory personnel exposure to hazardous chemicals.

At a minimum, this definition covers laboratory personnel (including student laboratory personnel, technicians, supervisors, and Principle Investigators) that use chemicals in teaching, research, and clinical laboratories at the University of Wisconsin- Milwaukee. Certain non-traditional laboratory settings may be included under this standard at the option of individual departments within UWM.

This standard does not apply to laboratories whose function is to produce commercial quantities of material. Also, where the use of hazardous chemicals provide no potential for laboratory personnel exposure, such as in procedures using chemically impregnated test media and commercially prepared test kits, this standard will not apply.

## 3. Coordination with Other Standards and Guidelines

The Laboratory Safety Standard addresses occupational safety issues. Other federal, state ([Appendix E](#)), and University of Wisconsin System standards address use of hazardous chemicals and other materials. Contact the Department of University Safety and Assurances (US&A) if not positive of applicable standards. Particularly, chemicals with individual standards ([Appendix C](#)) generally have action limits (usually set at half the TLV), air monitoring requirements, and medical monitoring requirements. If a researcher is using one of these chemicals or in the unlikely event that there is a conflict between provisions of various standards, contact the [Chemical Hygiene Officer](#) or US&A at 229-6339.

## 4. Responsibilities

Implementation of the Laboratory Safety Standard at UWM is a shared responsibility. Laboratory personnel, supervisors, Laboratory Safety Officers, department heads, deans, upper administrative staff, and US&A staff all have roles to play. These roles are outlined below.

### A. University-Wide

The University of Wisconsin-Milwaukee, in conjunction with its schools, colleges, and non-academic departments, is responsible for developing and supporting a broad-based chemical hygiene program that will protect its laboratory personnel from health effects associated with hazardous chemicals. Deans, Directors and Division Heads are responsible for integrating safety into all of their activities, for promoting the same attitude among all levels of employment at the University, and for providing adequate time and recognition for all laboratory personnel that are given laboratory safety responsibilities.

### B. Schools, Colleges, and Non-academic Departments

Each school, college, and non-academic department that engages in the laboratory use of hazardous chemicals will identify at least one laboratory safety representative to serve as a focal point for laboratory health and safety activities within the unit and as liaison with the Department of University Safety and Assurances. Schools and colleges that are made up of a number of large laboratory-based departments are urged to assign laboratory safety representatives within each department. Each school, college, and non-academic department will modify this generic Chemical Hygiene Plan

to incorporate location-specific information and will submit a copy of the modified plan to the [Chemical Hygiene Officer](#) for approval. Each unit will also identify the assigned laboratory safety representative(s) within their units and will transmit that information to the [Chemical Hygiene Officer](#).

### **C. Department of University Safety and Assurances (US&A) (See [Appendix H](#))**

The Chemical Hygiene Officer for UWM is the Laboratory Safety Program Manager with University Safety and Assurances. US&A staff will participate in providing resources for departments in the development of their individual health and safety programs. The Department of University Safety and Assurances is responsible for:

- preparing and updating UWM's generic Chemical Hygiene Plan (CHP);
- distributing the CHP to departments or other units who will tailor and implement the plan;
- training designated departmental laboratory safety officers regarding their responsibilities for safety and compliance with regulations and UWM standards that apply to research;
- conducting annual audits of the research space under the supervisors control; and
- monitoring the progress of departments toward achieving compliance.

### **D. Laboratory Supervisors/ Principal Investigators**

The immediate supervisor of laboratory personnel is responsible for:

- assuring that potential hazards of specific projects have been identified and addressed before work is started;
- ensuring there are written, laboratory-specific standard operating procedures for the protocols carried out in the laboratory that incorporate directions about how to mitigate the hazards of the procedures;
- develop and implement a group Chemical Hygiene Plan;
- informing and training laboratory personnel and students regarding the specific hazards in their area and in the work they will be doing (See [Wisconsin Employees' Right-to-Know Law](#));
- scheduling time for laboratory personnel to participate in training outlined in [Chapter 5](#);
- documenting and maintaining records of safety training per [Chapter 8](#) including [certification](#) that all lab personnel have read and understand the Chemical Hygiene Plan;
- enforcing UWM safety policies and safe work practices;
- conducting periodic audits of the research space under their control;
- reporting hazardous conditions to Department Chair or Dean; and
- investigate laboratory accidents, document the investigation ([Worker's Compensation section](#) or [Appendix J](#)), and send copies of form with recommendations to the [Chemical Hygiene Officer](#) for review.

### **E. Group Safety Representatives**

Laboratory supervisors/ Principal Investigators are encouraged to designate an individual from their research group to serve as the Group Safety Representative (GSR). The Group Safety Representative will serve as a liaison for US&A and will advise and assist their laboratory supervisors with:

- training new personnel;
- disseminating safety information;
- conducting inspections of their group's laboratories; and
- inspecting and ensuring the maintenance of group safety equipment (spill containment kits, fire extinguishers, safety showers, and eyewash facilities).

The GSRs will also be responsible for:

- safety and chemical hygiene issues;
- evaluating and making recommendations for safety issues that concern the entire department; and

- participating in periodic safety inspections of department laboratories or shops.

#### **F. Faculty, Staff, and Laboratory Personnel**

Faculty, staff, and laboratory personnel who have significant responsibility for directing their own laboratory work are responsible for assuring that potential hazards of specific projects have been identified and addressed before work is started. All laboratory personnel, however, are responsible for:

- attending safety training sessions;
- following safety guidelines applicable to the procedures being carried out;
- assuring that required safety precautions are in place before work is started; and
- reporting hazardous conditions as they are discovered.

## **5. Acknowledgements**

University Safety and Assurances wishes to thank Dawn Errede at the University of Minnesota and Jerry Gordon at Cornell University for their generous assistance in creating this document. Their chemical hygiene plans were used extensively as a model and framework to create this Chemical Hygiene Plan.