N.C. State University
Environmental Health and Safety Center

Chemical Hygiene Plan (CHP)

1910.1450 OSHA Lab Safety Standard

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Section 1: General Information

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1. Purpose

The purpose of the Chemical Hygiene Plan (CHP) is to acquaint students and employees with North Carolina State University's health and safety procedures. The CHP also informs employees of their rights and obligations under federal regulations regarding laboratory use of hazardous chemicals.

While the scope of this document is limited to hazardous chemicals, additional information regarding NC State health and safety requirements for other types of hazards, including but not limited to ionizing and non-ionizing radiation, biohazards, and the safe use of hazardous materials and equipment can be found in the NC State Health and Safety Manual.

The provisions of the NC State Chemical Hygiene Plan that follow, will serve to minimize the risks associated with exposure to hazardous chemicals. In addition, care must be taken to assure that chemical use areas are secured. Each chemical user should review the NC State Lab Security and Safety Procedures.

To document your training, at the end of this guide you will be required to complete a short quiz.

2. Scope

a. What is the CHP?

The Chemical Hygiene Plan applies to all North Carolina State University research personnel, who handle or may be exposed to hazardous chemicals in research laboratories at North Carolina State University. The Chemical Hygiene Plan is in place to inform employees about specific health hazards found in laboratories and to reduce chemical exposures below limits specified by OSHA. The Chemical Hygiene Plan shall be readily available to all laboratory employees at all times. The CHP shall include all elements required by OSHA 29 CFR 1910.1450.
b. What is not covered

The CHP does not cover work with radioactive materials or biological agents. Procedures for work with these materials are addressed through the University's Radiation Safety Manual and Biosafety Manual, respectively. Furthermore, additional information on physical hazards such as electrical safety and fall protection that are not covered by the CHP can be found on EHS website in the Health and Safety Manual:

c. Chemical Hygiene Officer (CHO)

The principal investigator (PI) / Supervisor should designate a person as the chemical hygiene officer to coordinate and implement the CHP in their area. The University Chemical Hygiene Officer resides in the Environmental Health and Safety Center and can be contacted for additional assistance at 513-1282 or 515-6871.

3. How to review this document

a. Basic CHP

The basic CHP includes all information that students and employees are required to review as part of their work or research assignment. Additional information is also provided in the supplementary modules found throughout the CHP.

b. Optional supplementary modules

Additional health and safety information can be found in the optional supplementary modules, if the PI or Supervisor determines that laboratory personnel need to review this information before using hazardous materials, the employee shall review the supplementary CHP modules. These modules will direct users to additional information on the NCSU website or external web-based resources. Appendices (i - vi) also provide additional information about specific classes of chemical hazards, as indicated in the table of contents. Please report any failed links to the University Chemical Hygiene Officer at 513-1282 or 515-6871.

4. The basic safety training and information you need

The principal investigator shall determine the extent of training. The PI / Supervisor shall also provide employees with information and training to ensure that they are apprised of all the known chemical hazards that are present in their work area.

a. New employee orientation training

This training is considered basic communication training, and is required for all new employees.
b. Managers safety orientation checklist

The Managers Safety Orientation Checklist is required training for all new workers at NCSU. This checklist must be completed and reviewed with all new employees, including volunteers by their manager prior to the commencement of work activities. This checklist shall be provided at the time of an employee's initial assignment to a work area and completed on their first day of employment.

c. Content of this CHP document

Including basic and supplementary modules shall be used as a training tool for current and new employees, who are to work with or around hazardous materials, processes or chemicals.

d. Specialized training that you need

Such information and training shall be provided at the time of an employee's initial assignment to a work area and prior to assignments involving new exposure situations the frequency of refresher information and training shall be determined by the PI / Supervisor. OSHA Laboratory Safety Standard requires that employee information and training shall cover the following elements:

- Contents of the OSHA Laboratory Safety Standard (29 CFR 1910.1450)
- The location and availability of the Chemical Hygiene Plan
- The permissible exposure limits for OSHA regulated substances (29 CFR part 1910, subpart Z) or recommended exposure limits for other hazardous chemicals where there is no applicable OSHA standard
- Signs and symptoms (see Safety Data Sheet)
- Location and availability of known reference material on the hazards, safe handling, storage and disposal of hazardous chemicals found in the laboratory including, but not limited to, EH&S Health and Safety Manual, Safety Data Sheets (formally: Material Safety Data Sheets) received from the chemical supplier, and Materials and Waste Directory.
- Methods that may be used to detect presence of hazardous material in work environment, include but are not limited to gas, dust and fume monitoring equipment or procedures. Please contact Environmental Health and Safety for any necessary monitoring / sampling for hazardous material.
- Employees need to be informed about the specific health and physical hazards of the chemicals in their work environment. SDS and OSHA Occupational Health and Safety Standards are two major sources for this information.
- The measures employees can take to protect themselves from these hazards, including specific procedures the PI / Supervisor has implemented to protect employees from
exposure to hazardous chemicals, such as appropriate work practices, emergency procedures, and personal protective equipment are to be used.

- Safety training for specific hazards / procedures such as safe handling of pyrophoric chemicals or perchloric acid use.

e. Safety plan and self-assessment checklist

The PI / Supervisor shall train all employees on the details of their work area safety plan, how to use the safety plan and its location. Additionally the PI / Supervisor should review the Supervisor Safety Self-Assessment Checklist with all employees as a support training tool.

f. Chemical laboratory safety references

Supplementary Modules:

Safety in Academic Chemistry Laboratories

“Prudent Practices in the Laboratory: Handling and Disposal of Chemicals”

g. Laboratory specific: Standard Operating Procedures (SOP’s)

As part of the Safety Plan, laboratories need to develop standard operating procedures, which spell out each experiment, along with all safety precautions, necessary protective methods and equipment. SOPs need to be updated frequently and be readily available for employees to use.

h. Other training documents

Any document that will educate the employee or student in the safe operation and handling of chemicals in the laboratory, such as equipment operation manuals, published literatures, published procedures, etc.

5. Medical consultation and examination

Employees working with animals are required to complete a health questionnaire, which is reviewed by an occupational physician working for or with University. The questionnaire review will allow for appropriate medical recommendations to be provided to the employee and their supervisor for the work they will be performing. Medical examinations may be required for certain other employee tasks. In the event of an overexposure to a toxic substance, the emergency phone number for the university should be called (911). As part of the responding action employees may be offered the opportunity for a medical exam or consultation related to their exposure. Consult ‘Medical Surveillance’ for more information.
6. **Recordkeeping**

The PI / Supervisor should maintain records of all relevant training that employees or students receive before, or during their tenure in the research lab. Where medical exams are provided, University Health will establish and maintain, for each employee, an accurate record of medical consultation and examinations including tests or written opinions required by OSHA. EH & S will maintain an accurate record of any measurements taken to monitor employee exposure to hazardous materials.

**CONTINUE TO SECTION 2: (Hazard Assessment)**