OSHA's Laboratory Standard

Given the unique characteristics of the laboratory workplace, the Occupational Safety and Health Administration (OSHA) has tailored a standard for occupational exposure to hazardous chemicals in laboratories (often referred to as the Laboratory Standard). Under this standard, a laboratory is required to produce a customized chemical hygiene plan (CCHP) to address its specific hazards and define the most appropriate way to manage these hazards.

Program Information

The Laboratory Standard is a combination of several subparts of other OSHA standards that deal with hazardous substance exposure and employee safety, including the personal protective equipment standard and the toxic and hazardous substances standard.

One of the most important requirements of the Laboratory Standard is the establishment of a CCHP. OSHA does not have a mandatory, universal chemical hygiene plan that is enforced in all laboratories. Instead, the Laboratory Standard is meant to provide employers with a way to tailor their safety and health management systems to fit their unique circumstances.

Employers are required to develop their own CCHP to address the unique hazards present in their workplaces. This article outlines the main components of a compliant CCHP and provides tips for getting started on a customized plan that fits your needs.

Benefits of a CCHP

While laboratories deal with a variety of substances that are, or have the potential to be, harmful to humans, most plans focus on limiting the range of employee exposure. For this reason, instead of broad generalizations about how to deal with all hazardous chemicals, your CCHP should provide adequate procedures to handle the substances most common in your operations. Once tailored to the specific environment faced by your employees, the plan will effectively pinpoint inherent dangers in your facilities and reduce the risk of employee injury.

An exemplary CCHP makes good business and financial sense because the cost of accident prevention is far lower than the cost of the cleanup, repairs and medical care that can result from an accident. An effective CCHP can improve your bottom line by:

- Lowering injury and illness rates;
- Decreasing workers' compensation costs;
- Reducing lost workdays; and
- Limiting equipment damage and product losses.

An effective CCHP can achieve these results and increase employee morale by identifying the hazards present in your workplace, protecting employees from injury and illness, preventing loss of life, avoiding damage to property and cultivating employees that are informed, alert and committed to personal, co-worker and workplace safety.

In addition, an increased understanding of workplace hazards and remedies will help your managers and supervisors comply with federal and state safety and health regulations, perform their safety responsibilities more efficiently, increase productivity rates and assure product quality.

Getting Started

To create and implement a CCHP, employers must first evaluate which OSHA standards apply to their specific situation. To help employers determine what and how standards relate to them, OSHA published the National Research Council Recommendations Concerning Chemical Hygiene in Laboratories. This document provides recommendations on how to adapt the Laboratory Standard

requirements into a working CCHP. Below are a few additional suggestions to help you create a suitable plan.

Additional Suggestions to Establish a CCHP

- Identify each activity and procedure in your laboratory that involves the use of hazardous chemicals;
- Determine which standard operating procedures are relevant for the safety and health of every employee that participates in the activities and procedures that involve the use of hazardous chemicals;
- Define the criteria that you must use to select and implement employee exposure control and reduction methods, particularly when dealing with extremely hazardous materials. Exposure control and reduction methods can include engineering controls, personal protective equipment, administrative controls and hygiene practices;
- Include provisions to account for the proper installation, maintenance and function of chemical hoods and other protective equipment;
- Outline how you plan to distribute relevant hazardous material information to help affected employees manage their exposure at the workplace. This information includes:
    - Material safety data sheets (MSDS);
    - Hazards;
    - Recommended exposure limits;
    - Signs and symptoms of exposure;
    - Location and availability of safe-handling information; and
    - Safe storage and disposal locations;
- Establish training procedures for employees working with hazardous substances. The training should cover the methods and techniques that they can use to detect the presence or release of a hazardous chemical, the physical and health hazards of the chemicals they work with, the measures they must take to protect themselves against these hazards (such as personal protective equipment, appropriate work practices or emergency response actions) and any applicable details of the CCHP;
- Define when a particular laboratory operation or procedure requires prior administrative approval;
- Establish requirements for medical consultation and medical examination whenever:
    - An employee develops signs or symptoms associated with exposure to a hazardous chemical;
    - Exposure monitoring reveals an exposure level routinely above the action level; or
    - An event takes place in the work area (spill, leak, explosion or other anomaly) that will likely result in exposure to a hazardous chemical;
- Develop a system to monitor employee exposure. The system must establish guidelines to create and maintain accurate records of monitoring efforts and ensure the confidentiality of related employee medical consultations and examinations;
- Designate a Chemical Hygiene Officer and identify other personnel responsible for the implementation and enforcement of the CCHP;
- Highlight the requirement for additional protection when working with particularly hazardous substances, such as select carcinogens, reproductive toxins and substances with a high degree of acute toxicity; and
- Include a provision for yearly re-evaluation of the CCHP.

Considerations for the Biotech Industry

When OSHA developed its Laboratory Standard, it could not foresee the incredible advances made in the field of biotechnology over the past several years. Current standards address primarily hazardous chemicals and a limited number of other substances.

However, for the most part, OHSA standards do not cover pathogens, viruses or other infectious agents that lab employees in the biotechnology industry work with. This creates a lapse in regulation that could increase the dangers faced by biolab workers. OHSA is currently working to address these new dangers and institute regulations that would improve employee safety throughout the industry. If your company works in the biotechnology industry, watch for future changes in OSHA regulations.

Until then, to build a safe work environment and to ensure compliance with OSHA, do not limit your CCHP to the substances that are currently regulated. Instead, develop your CCHP to include any biological hazardous substance or biological agent that your employees may be exposed to while they perform their duties. For more information on the OSHA's Laboratory Standard, visit www.osha.gov.

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Tel: 800-724-0695 ♦ www.marshallsterling.com/incubator
Lorraine Emerick, lemerick@marshallsterling.com

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