

Chemical Hygiene Policy

Procedure: 6.05
Version: 1.0
Created: 6/15/2013

A. Purpose:

The Chemical Hygiene policy establishes Columbia University's position for the protection of laboratory workers in accordance with the requirements of OSHA standard 29 CFR 1910.1450 *Occupational Exposure to Hazardous Chemicals in Laboratories*, also referred to as the Laboratory Standard. This policy provides current general references to safe work procedures, exposure monitoring, medical surveillance, recordkeeping, training and emergency response. For details and further requirements consult the Columbia University Chemical Hygiene Plan (CHP) <http://www.ehs.columbia.edu/HManual.html>.

B. Applicability/Scope:

The policy applies to faculty, staff and students on all campuses, including Morningside, Medical Center, Lamont Doherty Earth Observatory and Nevis, engaged in the laboratory use of hazardous materials covered under the Occupational Health and Safety (OSHA) Standard 29 CFR 1910.1450.

C. Responsibilities:

The Principal Investigator (PI) has overall responsibility for safety and compliance in his or her laboratory, although specific responsibilities can be delegated to a competent designee(s). The PI must ensure that laboratory personnel have read, understand and adhere to this policy, its applicable Plans, including the [Laboratory Assessment Tool and Chemical Hygiene Plan \(LATCH\) for the lab](#), and all University, school, departmental and laboratory policies and procedures. Further details of responsibilities are provided in the Chemical Hygiene Plan. (Refer to [Role and Responsibilities in Research](#) section of CHP).

D. Definitions

All definitions related to this policy are covered under the [Occupational Health and Safety \(OSHA\) Standard 29 CFR 1910.1450](#), Occupational Exposure to Hazardous Chemicals in Laboratories.

E. Procedures

1. Health Hazards of Chemicals

OSHA defines hazardous chemical as any chemical that is classified as a health hazard or simple asphyxiant in accordance with the Hazard Communication Standard (29 CFR 1910.1200). *Health hazard* means a chemical that is classified as posing one of the following hazardous effects: acute toxicity (any route of exposure); skin corrosion or irritation; serious eye damage or eye irritation; respiratory or skin sensitization; germ cell mutagenicity; carcinogenicity; reproductive toxicity; specific target organ toxicity (single or repeated exposure); aspiration hazard. (Refer to [section 1.2 of CHP](#)).

2. Guidelines for Working Safely with Chemicals

Good laboratory hygiene relies on adherence to protocols, procedures, policies and best practices. Ensuring that proper work practices are followed will limit the probability of occupational exposure to hazardous chemicals, thus reducing the possibility of injury and illness. (Refer to [section 1.3 of CHP](#))

3. Minimizing and Controlling Chemical Exposure

Removing the hazard from the workplace is the most effective method of minimizing exposure. Elimination of a hazardous substance from a process (aka "engineering out the hazard",) or substitution of a hazardous substance with a less hazardous substance should always be the first approach. If a chemical hazard cannot be eliminated, the next best strategy for its control is the use of engineering controls, such as a chemical fume hood ([Chemical Fume Hood Policy](#)). Personal Protective Equipment (PPE) represents the "last line of defense" against potential exposure. The University's [Policy for Personal Protective Equipment in Research Laboratories](#) delineates requirements for the selection, use and maintenance of PPE in all laboratories. (Refer to [section 1.4 of CHP](#))

4. Measuring Chemical Exposure

Chemical Hygiene Policy

Procedure: 6.05
Version: 1.0
Created: 6/15/2013

The vast majority of chemicals used in research laboratories, when used in research quantities, do not pose a significant health hazard if Standard Operating Procedures (SOPs) and good laboratory hygiene practices are employed. An exposure assessment, performed by EH&S, is designed to evaluate the chemical(s) used in terms of concentration and quantity, frequency of use, and manner of use, along with the available engineering controls, in an effort to determine the potential exposure to a user. Based on assessment recommendations are made to reduce exposure, where exposure may exist. ([Refer to section 1.5 of CHP](#))

5. **Chemical Purchase, Receipt, Inventory and Shipment**

Purchase chemicals in the smallest quantity sufficient for your work. Each laboratory shall compile and maintain a chemical inventory of all hazardous chemicals normally used or stored in the laboratory. The list shall include relevant information about each chemical, including where it is normally used or stored. This inventory shall be updated as needed, but not less than annually. ([Refer to section 1.7 of CHP](#))

6. **Training and Information**

Training is the cornerstone of any successful health and safety program and is the fundamental element of EH&S's commitment to ensuring Columbia University maintains and promotes a safe workplace. Many research activities require specialized training which can be determined by visiting [EH&S's Safety Training webpage](#). ([Refer to section 1.8 of CHP](#))

7. **Waste Management**

Federal, state and local regulations, as well as Columbia University policy, prescribe procedures for the management of biological, [chemical](#) and radioactive wastes. The University's [Policy on Drain Disposal of Chemicals](#), [5Ls of Hazardous Waste Management](#), [Biological Waste Management](#) and [Radioactive Waste Management](#) procedures comprise the guidelines laboratory personnel must follow to safely manage waste products from research activities. ([Refer to section 1.10 of CHP](#))

F. **Emergency Contacts**

Laboratory personnel must know what procedures to follow in the event of a [chemical release](#). They must know how to report the incident and clean up the spill and who to contact in case of injury. ([Refer to section 1.11 of CHP](#))

G. **Medical Surveillance**

Columbia University has established a medical surveillance program to address certain work place hazards, including occupational exposure to biological, chemical and physical hazards. The details of the program are outlined in the CHP. ([Refer to section 1.6 of CHP](#))

H. **Recordkeeping**

EH&S maintains records of any measurement taken to monitor employee exposures to chemicals and training in accordance with the requirements of OSHA regulations as detailed in CHP. Medical Surveillance/Consultation Records are maintained by the physician or other licensed healthcare professional. Employees shall have access to their medical records in accordance with the law, as explained in CHP. ([Refer to section 1.9 of CHP](#))

I. **Appendices** See Chemical Hygiene Pan for details.

J. **References**

Occupational Health and Safety (OSHA) Standard 29 CFR 1910.1450, Occupational Exposure to Hazardous Chemicals in Laboratories, also referred to as the Laboratory Standard.