

Title: Chemical Hygiene Written Program
Effective Date: November 2005
Revision Date: February 8, 2017
Issuing Authority: VP, Facilities and Construction Management
Responsible Officer: Director Environmental Health and Safety

PURPOSE OF THE WRITTEN PROGRAM

To establish a written program which fulfills the requirements of the OSHA Standard for Occupational Exposures to Hazardous Chemicals in Laboratories [29CFR1910.1450] approved January 31, 1990 and updated March 26, 2012 to align with the inclusion of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS). Methods used to keep exposures below the OSHA permissible exposure limits [PELs] specified in 29CFR1910.1000, subpart Z are included.

SCOPE OF THIS WRITTEN PROGRAM

The Chemical Hygiene Plan (CHP) was developed to protect clinical and research laboratory employees of New York University (NYU) from exposure to hazardous chemicals and to comply with all provisions of the OSHA Standard, 29 CFR 1910.1450, Occupational Exposures to Hazardous Chemicals in Laboratories.

WHO NEEDS TO KNOW THIS WRITTEN PROGRAM

All New York University laboratories. Workplaces where relatively small quantities of chemicals are used on a non-production basis.

PROCEDURES FOR IMPLEMENTATION

Responsibilities:

Department of Environmental Health & Safety

NYU designates the Director of Environmental Health & Safety (EHS) or their designee as the Chemical Hygiene Officer (CHO) who is responsible for implementing the elements of the Chemical Hygiene plan in order to comply with the OSHA Standard. Responsibilities of the CHO include:

- Work with Departmental Chairpersons, administrators and other lab employees to develop and properly implement the chemical hygiene policies.
- Oversee proper use, storage and disposal of chemicals used in laboratories.
- Assist Construction Project Managers in review of plans for new labs where hazardous chemicals will be used.
- Provide information and training for the Chemical Hygiene Plan.
- The CHO will annually review the Chemical Hygiene plan and updated it as necessary.

Laboratory Department Chairperson or Designee

NYU designates Laboratory Departmental Chairpersons or their designees as the Assistant Chemical Hygiene Officer (ACHO) for their respective department. The ACHO duties include:

- Ensuring Principal Investigators send employees to Laboratory Safety, Hazardous Waste and all other relevant safety trainings. Contact EHS for guidance.

- Informing the CHO of the use of extremely hazardous substances and new processes or equipment utilizing hazardous chemicals.
- Required to participate in HAZWOPER training for chemical spill response awareness.
- Assist lab personal with small and medium sized chemical spills, and reach out to the EHS CHO for additional assistance on spill response.
- Assist EHS in overall Lab Safety compliance for their respective science departments which may include:
- Ensuring Lab Managers and Principal Investigator create and adhere to Standard Operation Procedures (SOP) for their respective laboratories
- Ensuring Safety Data Sheets (SDS) are found within the lab.
- Ensuring all appropriate PPE is utilized within the lab.
- Ensuring all labs are managing hazardous waste according the NYU Hazardous Waste Minimization and Disposal Written program.
- Working with and responding to the EHS CHO on all other Lab Compliance items.

Facilities Manager, Department Manager, Construction Manager and Supervisors

Facility, Departmental and Supervisor managers should be aware of this written program and familiar with the ACHO for the science department and the EHS representative (the CHO).

Maintenance and Housekeeping Personnel

Housekeeping personnel must be made aware of the hazards present in laboratories. Before cleaning any surfaces, the janitorial/maintenance staff should get direction from Lab Manager, ACHO, or EHS on special precautions related to maintenance repair and cleaning in research laboratories.

Medical Surveillance

In the event of a chemical exposure or incident that may have resulted in chemical, physical, or radiological exposure employees are to inform their supervisors immediately and either call 911 or send the employee to the NYU Langone Employee Health Service.

WRITTEN PROGRAM DEFINITIONS

OSHA: Occupational Safety and Health Administration

Hazardous Chemical: Chemical that is a physical and/or health hazard.

Extremely Hazardous Substance: Select carcinogens, reproductive toxins, and substances with a high degree of acute toxicity (Permissible Exposure Limit, PEL, of less than 2 ppm or 2 mg/m³).

New Processes or Equipment: New equipment or procedure used at NYU that could possibly expose employees to a hazardous material.

Chemical Hygiene Officer: An employee who is designated by the employer, and who is qualified by training or experience, to provide technical guidance in the development and implementation of the provisions of the Chemical Hygiene Plan.

UNIVERSITY WRITTEN PROGRAM

Standard Operating Procedures:

1. The NYU Laboratory Safety Handbook includes general SOPs for working with hazardous chemicals. This handbook is to be supplemented by additional lab specific procedures for specific classes of hazardous materials as well as specific departmental policies.
2. Copies of the Laboratory Safety Handbook and all lab specific procedures are to be maintained in the lab. Additional copies of the handbook can be obtained from EHS and found on the website at <https://www.nyu.edu/content/dam/nyu/environmentalHealthSafety/documents/LabSafetyManual.pdf>

Safe Handling Procedures and Implementation of Exposure Controls:

1. Exposure to hazardous and extremely hazardous material will be controlled by the following processes
 - a. NYU labs will maintain chemical inventories of hazardous and extremely hazardous materials used in their work area. Lab ACHO must inform the CHO when labs are introducing new processes using material that is extremely hazardous.
 - b. Protective measures for work with particularly hazardous substances, including OSHA, NTP or IARC carcinogens, reproductive toxins [mutagens and teratogens], or a substance with a high degree of acute toxicity are developed and communicated to lab workers as required. The need for such specific guidelines is determined by review of health and physical hazards associated with chemicals used in labs.
 - c. Each individual in the lab area has the responsibility to review the SDS for any new material prior to its use and understand the hazards associated with it.
 - d. Recommendations for safe handling of specific chemicals are made to the Lab ACHO. Based on the results of the review, the following may be implemented by the laboratory department
 - i. Lab will establish a designated area for use of extremely hazardous materials.
 - ii. Lab employee will use specific protective equipment appropriate for the hazardous material, including both engineering controls and personal protective equipment
 - iii. Specific waste disposal and decontamination procedures will be implemented
 - e. An updated chemical inventory must be kept in each lab at NYU. Each chemical will be reviewed for both physical and health hazard classification. The compiled list for the facility will be maintained by EHS through the use of an online chemical inventory system.
2. Certain laboratory operations, procedures or activities may require prior approval before they may be carried out. Identification of restricted activities is at the discretion of the lab ACHO. When lab workers handle chemical substances whose toxicological properties have not been fully evaluated, the material must be handled with appropriate personal protective equipment [PPE] as determined by a hazard evaluation and in a properly ventilated hood.
 - a. The Laboratory ACHO will inform the CHO of the new processes and/or equipment. The CHO will then conduct a review and determine if additional safety and health precautions are necessary.
 - b. The Lab ACHO will approve new processes and equipment based on the review by EHS.

Measures To Minimize Exposure:

1. Chemical fume hoods are the first line of defense against exposure to chemical vapors, gases and aerosols for laboratory workers. These ventilation systems must be used when handling hazardous chemicals.

- a. EHS will test for face velocity of the hoods annually. If the hood is not functioning properly, EHS will notify the appropriate Facility Manager, School Administrator as well as the HVAC Department for repair via e-mail. HVAC will issue a work order number that will be used by EHS to follow up on the completion of the repair. The hood will be re-evaluated after the work is complete per HVAC.
 - b. Lab fume hoods must have a minimum average face velocity of 80 feet per minute [fpm] and a maximum average face velocity of 120 fpm. Sash must be maintained at 18 inches [the height of the sash at which the face velocity is tested] and closed when not in use.
 - c. Horizontal sash windows, if present, should only be used for setting up lab apparatus and must be closed during lab use.
 - d. Fume hoods should be used by opening and closing sashes up and down ONLY. Never utilize the hood sash left to right when conducting active experiments, ONLY utilize up and down.
 - e. Laboratory personnel are instructed to keep hoods clear of clutter that would cause disruption of air flow into the hood and compromise the protection against hazardous substances.
2. Personal Protective Equipment needs and levels will be determined by the CHO through hazard analysis. Once the PPE selection has been determined, lab workers along with the ACHO are responsible for its use.
 - a. Respiratory protection is required by the lab standard only if exposure to a material exceeds the PEL. Refer to NYU Respiratory Protection Written Program written program for use and procedures.
 - b. Use and selection of skin and eye protective devices are given in NYU Procedures for the Use and Selection of Personal Protective Equipment Written program.
 3. Whenever possible, a non-toxic or less toxic chemical or substance should be substituted for a highly toxic one. Alternative chemicals or methods should also be considered for chemicals which are hazardous due to flammability, explosivity or reactivity.
 4. Exposure limits as set by OSHA [PELs] and ACGIH [TLVs] are to be observed.
 - a. EHS must perform Industrial Hygiene exposure monitoring if there is a reason to believe that exposure levels for a substance routinely exceeds the action level or ½ the PEL.
 - b. If initial exposure monitoring reveals levels above the action limit, EHS will implement periodic monitoring. Refer to NYU Industrial Hygiene Written Program written program.
 5. Procedures for safe handling and storage of hazardous chemicals or substances are detailed in NYU Handling & Storage of Flammables & Explosive Chemicals in Laboratories written program.
 6. Procedures for waste handling, minimization and disposal are given in NYU Hazardous Waste Minimization and Disposal written program.
 7. Safety inspections and lab audits are conducted annually. All items noted on the inspection is communicated to the Principal Investigator of the lab.
 8. Emergency response plan is to be implemented by Public Safety or EHS when an incident, such as a fire, explosion, or release of hazardous material which has the potential to threaten human health or the environment. A copy of the NYU Emergency Response Manual is in the EHS office.
 - a. All accidents including those involving chemicals are reported to Public Safety.
 - b. Reporting procedures are included in the Emergency Response Plan

Information and Training:

1. A Copy of the CHP is located on the EHS website and available by request in paper format to all laboratory employees at NYU.
2. Employee training will be conducted initially when assigned to a laboratory and upon change within laboratories where exposure situations involving hazardous chemicals or substances will be different. EHS will be responsible for training.
3. Training program will consist of the following information
 - i. Regulations effecting labs with an overview of the requirements of OSHA's Occupational Exposures to Hazardous Chemicals in Laboratories as given in 29CFR1910.1450.
 - ii. NYU's responsibility under the lab standard.
 - iii. Methods used to determine hazardous substances in labs with an explanation of the Permissible

- Exposure Levels [PELs] for OSHA regulated substances and recommended exposure limits for other hazardous chemicals where there is no applicable OSHA standard.
- iv. Controls for safe handling of lab chemicals with physical and/or health hazards and risk assessments in labs.
 - v. Protective measures for chemical storage and transporting lab chemicals including specific procedures implemented such as work practices, emergency procedures and protective equipment to be used.
 - vi. Use and location of the Safety Data Sheets.

Medical Consultations and Exams:

1. The ACHO will coordinate medical evaluations with the Insurance Department. Lab employees will receive medical consultation in the event of an emergency that results in the likelihood of hazardous chemical exposure. Lab employees will be provided with a medical examination upon the development of signs or symptoms associated with exposure to hazardous chemicals in the laboratory.
2. Physicians will provide a written opinion in accordance with the OSHA Lab Standard. A copy of the standard will be provided to the attending physician by EHS.
3. Bloodborne Pathogens and biological safety is detailed in NYU BloodBorne Pathogen written program.

Hazard Identification:

1. NYU will primarily rely on the hazard determination of the chemical or substance on the SDS received by NYU from the manufacturer.
2. Hard copies of SDSs will be maintained at each respective laboratory that stores hazardous chemicals. Individual labs are to have access by computer and/or maintain copies of SDSs specific to the materials used in the lab area. In order to have access to all SDSs after normal working hours, the Public Safety Director of Emergency Management will have full access to the online chemical inventory system in order to obtain SDSs for chemicals stored in NYU facilities.
3. An SDS index of all chemicals used at NYU-Washington Square, Dental Center, and the Tandon School of Engineering will be maintained by EHS of all hazardous chemicals or products. This list will be the official OSHA list of all chemicals or products at this site. The online chemical inventory system will be the official full list of all chemicals stored and used at NYU facilities.
4. Departments not obtaining or ordering chemicals through the Purchasing Department must notify EHS of chemical purchases. If there is no SDS available, the chemical or substance cannot be used until the SDS has been obtained from the manufacturer, vendor or other resources. A copy of the SDS in an ordered chemical shipment must be sent to EHS by the individual who receives the shipment.
5. All labels must be maintained on all chemical containers received at NYU. If a product or chemical is transferred to a new container, the label information [Full Chemical Name and Primary Hazard Information] must also be added to the container.

Record Keeping

EHS will be responsible for maintaining records of IH exposure monitoring, training, audits, and process/equipment reviews.

Review of the Chemical Hygiene Plan

The CHO will review and update as necessary. Review will be conducted at least annually and may include representatives from other areas to be consulted to assist with the review as deemed necessary by the CHO.

RELATED POLICIES

NYU Environmental Health and Safety Policy

RELEVANT RESOURCES

29 CFR 1910.1450 Occupational exposure to hazardous chemicals in laboratories