



Subject: **CHEMICAL HYGIENE PLAN**

Policy No. 108

APPLICATION

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

PURPOSE

To establish a policy which fulfills the requirements of the OSHA Standard for Occupational Exposures to Hazardous Chemicals in Laboratories [29CFR1910.1450] approved January 31, 1990. Methods used to keep exposures below the OSHA permissible exposure limits [PELs] specified in 29CFR1910.1000, subpart Z are included.

POLICY AND GENERAL INFORMATION

1.0 Introduction

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.

2.0 Definitions

- 2.1 Hazardous Chemical: Chemical that is a physical and/or health hazard.
- 2.2 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).
- 2.3 New Processes or Equipment: New equipment or procedure used at NYU (after 1/1/91) that could possibly expose employees to a hazardous material.

3.0 Designation and Responsibilities of Chemical Hygiene Officer [CHO]

- 3.1 NYU designates the Director(s) of Environmental Services or their designee as Chemical Hygiene Officer (CHO) whose responsibility it is to implement the elements of the plan. The CHO will annually review the plan, and update it as necessary. Responsibilities of the CHO will include:
 - 3.1.1 Work with Department Chairpersons, administrators and other employees to develop and implement appropriate chemical hygiene policies and practices.
 - 3.1.2 Monitor procurement, use and disposal of chemicals used in the laboratories.

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- 3.1.3 Assist project managers in review of plans for facilities where hazardous chemicals are used.
- 3.1.4 Provide information and training for the CHP.
- 3.1.5 Review the use of extremely hazardous substances and new lab processes or equipment using hazardous materials.

4.0 Designation and Responsibilities of the Assistant Chemical Hygiene Officers [ACHO]

- 4.1 NYU designates laboratory Departmental Chairpersons or their designees as ACHO with responsibilities that include the following:
 - 4.1.1 Ensuring employees attend chemical hygiene training sessions.
 - 4.1.2 Informing the CHO of the use of extremely hazardous substances and new lab processes or equipment using hazardous materials.
 - 4.1.3 Approving the use of extremely hazardous substances and new lab processes or equipment using hazardous materials after review by the CHO.
 - 4.1.4 Completing the Environmental Services [ES] survey for extremely hazardous substances when applying for a grant. This survey is part of the grant application material obtained from "Sponsored Programs."
 - 4.1.5 Ensuring lab employees adhere to the Standard Operating Procedures [SOPs].
 - 4.1.6 Informing employees of Industrial Hygiene [IH] exposure monitoring results provided by ES.
 - 4.1.7 Notification to ES of changes in an employee's exposure potential.

5.0 Standard Operating Procedures

- 5.1 The NYU Laboratory Safety Handbook includes SOPs for working with hazardous chemicals. This handbook is to be supplemented by additional lab specific procedures for specific classes hazardous materials as well as specific departmental policies.
- 5.2 Copies of the Laboratory Safety Handbook and all lab specific procedures are to be maintained in the lab. Additional copies can be obtained from ES.

6.0 Safe Handling Procedures and Implementation of Exposure Controls

- 6.1 Exposure to hazardous and extremely hazardous material will be controlled by the following processes:
 - 6.1.1 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.
 - 6.1.2 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.

- 6.1.3 ES evaluates the toxicity of the chemicals by reviewing the supplier's Material Safety Data Sheets [MSDSs]. Each individual in the lab area has the responsibility to review the MSDS for any new material prior to its use.
- 6.1.4 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:
 - 6.1.4.1 Lab will establish a designated area for use of extremely hazardous materials.
 - 6.1.4.2 Lab employee will use specific protective equipment appropriate for the hazardous material, including both engineering controls and personal protective equipment.
 - 6.1.4.3 Specific waste disposal and decontamination procedures will be implemented.
- 6.1.5 A chemical inventory will be performed annually 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 ES.

6.2 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.

- 6.2.1 ES will review all purchase requisitions and grant proposals to determine if any processes or equipment using hazardous chemicals are to be used at NYU.
- 6.2.2 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.
- 6.2.3 The Lab ACHO will approve new processes and equipment based on the review by ES.

7.0 Measures To Minimize Exposure

- 7.1 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.
 - 7.1.1 ES will test for face velocity of the hoods annually. If the hood is not functioning properly, ES will notify the appropriate Building Manager as well as the HVAC Service Department for repair via e-mail. HVAC will issue a work order number that will be used by ES to follow up on the completion of the repair. The hood will be re-evaluated after the work is complete per HVAC.
 - 7.1.2 Lab fume hoods must have a minimum average face velocity of 80 feet per minute

[fpm] and a maximum average face velocity of 150 fpm. Sash must be maintained at height the face velocity was tested.

7.1.3 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.

7.2 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.

7.2.1 Respiratory protection is required by the lab standard only if exposure to a material exceeds the PEL. Refer to NYU policy number 109 for use and procedures.

7.2.2 Use and selection of skin and eye protective devices are given in NYU policy number 112.

7.3 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.

7.4 Exposure limits as set by OSHA [PELs] and ACGIH [TLVs] are to be observed.

7.4.1 ES 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 $\frac{1}{2}$ the PEL or TLV.

7.4.2 If initial exposure monitoring reveals levels above the action limit, ES will implement periodic monitoring. Refer to NYU policy number 117 for the IH program.

7.5 Procedures for safe handling and storage of hazardous chemicals or substances are detailed in NYU policy number 105.

7.6 Procedures for waste handling, minimization and disposal is given in NYU policy number 101.

7.7 Safety inspections and lab audits are conducted quarterly. All items noted on the inspection is communicated to the Principal Investigator of the lab.

7.8 Emergency response plan is to be implemented by Protection Services or ES 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 ES.

7.8.1 All accidents including those involving chemicals are reported to Protection Services.

7.8.2 Reporting procedures are included in the Emergency Response Plan.

8.0 Information and Training

8.1 A Copy of the CHP is in the Laboratory Safety Handbook and available to all laboratory employees at NYU.

- 8.2 Employee training will be conducted initially and prior to new exposure situations involving hazardous chemicals or substances. ES will be responsible for initial training, annual refresher training and when informed by the ACHO of new exposure situations requiring training.
- 8.3 Training program will consist of the following information:
- 8.3.1 Requirements of OSHA's Occupational Exposures to Hazardous Chemicals in Laboratories as given in 29CFR1910.1450.
 - 8.3.2 Location, availability and details of the NYU Chemical Hygiene Plan
 - 8.3.3 Permissible Exposure Levels [PELs] for OSHA regulated substances and recommended exposure limits for other hazardous chemicals where there is no applicable OSHA standard.
 - 8.3.4 Physical and health hazards of chemicals present in the work areas and means to identify these hazards such as signs and symptoms.
 - 8.3.5 Protective measures including specific procedures implemented such as work practices, emergency procedures and protective equipment to be used.
 - 8.3.6 Methods and observations used to detect the presence or release of a hazardous chemical into the work area, such as IH monitoring and appearance or odor.
 - 8.3.7 Use and location of the Material Safety Data Sheets.
- 9.0 Medical Consultations and Exams
- 9.1 The ACHO will coordinate medical evaluations with the Benefits Department. Lab employees will receive medical consultation in the event of an emergency that results in the likelihood of hazardous 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.
 - 9.2 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 ES.
 - 9.3 Bloodborne Pathogens and biological safety is detailed in NYU policy number 110.
- 10.0 Hazard Identification
- 10.1 NYU will primarily rely on the hazard determination of the chemical or substance on the MSDS received by NYU from the manufacturer.
 - 10.2 MSDSs will be maintained at Protection Services, the Dental Center and ES. Individual labs are to maintain copies of MSDSs specific to the materials used in the lab area.
 - 10.3 An MSDS index of all chemicals used at NYU will be maintained by ES. This list will be the official OSHA list of all NYU chemicals on site.

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- 10.4 Purchasing Department will send a copy of all purchase requisitions for chemicals to ES. These requisition will be reviewed to ensure that ES has a MSDS for the materials. MSDS will be requested from the manufacturer as necessary.
- 10.5 Departments not obtaining or ordering chemicals through the Purchasing Department must notify ES of chemical purchases. If there is no MSDS available, the chemical or substance cannot be used until the MSDS has been obtained from the manufacturer, vendor or other resources.
- 10.6 All labels must be maintained on all chemical containers received at NYU.
- 11.0 Record Keeping
- 11.1 ES will be responsible for maintaining records of IH exposure monitoring, training, audits, and process/equipment reviews.
- 12.0 Review of the Chemical Hygiene Plan
- 12.1 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.