

# **ILLINOIS INSTITUTE OF TECHNOLOGY SAFETY POLICY COMMITTEE**

## **Chemical Hygiene Policy for Lab Safety Standards**

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## 1. PURPOSE

This Policy is designed to provide information and guidance to departments for the purpose of assisting them in complying with the OSHA Laboratory Safety Standard, [29 CFR 1910.1450](#). IIT requires each department to develop and maintain a written Chemical Hygiene Plan that addresses the unique risks and safety issues of the department and complies with applicable laws and rules. In accordance with this Policy, each department's Plan must be submitted to the IIT Director of Environmental Health and Safety, who, under this Policy, is the designated Chemical Hygiene Officer, for final approval.

## 2. SCOPE

The Policy covers all faculty, staff and/or students working in a laboratory with hazardous chemicals. The written chemical hygiene plan ("Plan") must specify procedures and work practices to protect faculty, staff and/or students working with hazardous chemicals in a laboratory.

## 3. DEFINITIONS

**Chemical Hygiene Officer** – The Chemical Hygiene Officer reviews and approves the Chemical Hygiene Plan developed by the departments. The designated Chemical Hygiene Officer is the Director of Environmental Health and Safety. The Chemical Hygiene Officer is also available to consult with departments as they develop their Plans. The Chemical Hygiene Officer also audits Plan compliance.

**Department Safety Officers** – A person appointed by the head of a department from the faculty or staff thereof. The Department Safety Officer has the responsibility for developing, implementing and monitoring his or her department's Plan. A department head may appoint Assistant Department Safety Officers as needed with clearly defined responsibilities.

**Hazardous Chemical** – Any element, chemical compound or mixture of elements and/or compounds which is a physical hazard or a health hazard. Unknown elements and chemical compounds must be assumed to be hazardous chemicals.

**Health Hazard** – A chemical or element for which there is statistically significant evidence based on at least one study conducted in accordance with established scientific principles that acute or chronic health effects may occur due to exposure.

**Labels** – Information attached to containers of chemicals. Labels on chemical containers must not be removed until the container is empty as defined by 40 CFR 261.7. Secondary containers will be labeled with the name of the chemical and must display appropriate hazard warnings (e.g. flammable, corrosive, radioactive) as applicable. A secondary container is any device used for the transportation, storage, dispensing or use (reaction) of a chemical and includes, but is not limited to, such things as beakers, flasks, test tubes, sample bottles, tanks, and reaction vessels.

**Faculty Laboratory Safety Coordinator** – A faculty member appointed by the Provost to assist departments in developing, implementing and monitoring laboratory safety standards that are consistent with IIT safety policies.

**Safety Data Sheet** – a written, electronic or printed document describing a hazardous chemical which is prepared in accordance with [29 CFR 1910.1200](#), paragraph (g). More generally, it is an informational tool

generated by manufacturers and suppliers of chemicals to provide safety information. A SDS must be on file for each chemical used in a laboratory.

**Particularly Hazardous Substances** – OSHA defines these substances as materials with a high degree of acute toxicity. It includes carcinogens, reproductive toxins (mutagens or teratogens) and materials of unknown toxicity. Carcinogens are defined as NTP listed materials, IARC Group 1 (carcinogenic to humans), Group 2A (probably carcinogenic to humans) and 3B (possibly carcinogenic to humans) listed substances.

**Personal Protective Equipment (PPE)** – PPE is equipment employees wear to provide a protective barrier between themselves and a potential hazard. Examples include, but are not limited to, safety glasses, lab coats, goggles, face shields, disposable garments, respirators and gloves.

**Physical Hazard** – A chemical or element for which there is scientifically valid evidence that it is a combustible liquid, a compressed gas, explosive, flammable, an organic peroxide, an oxidizer, pyrophoric, unstable (reactive) or water-reactive.

#### **4. RESPONSIBILITIES**

In general, the Chemical Hygiene Officer, with the assistance of the Faculty Laboratory Safety Coordinator, is responsible for aiding, as needed, each designated departmental safety officer to develop, implement and maintain compliance with his or her department's Chemical Hygiene Plan. The Chemical Hygiene Officer shall be responsible for reviewing and approving each department's Plan to ensure that it is consistent with this Policy and applicable regulatory requirements, including, without limitation, those of the Environmental Protection Agency and the Occupational Safety and Health Administration. However, the primary responsibility for the Plan rests with the departments. Specifically, department chairs or directors of administrative units are responsible for the development of their department's or unit's Plan and their department's or unit's compliance with the Plan, which includes appointing a Department Safety Officer. The Deans are responsible for ensuring that the department chairs or directors of administrative units reporting to them understand and perform their duties with respect to their Plans.

Plans are to indicate that Principal Investigators (or such other individual designated as responsible for the laboratory by the relevant department chair or unit director) have the primary responsibility for chemical hygiene in the laboratory for which he or she is responsible and that he or she is expected to:

- Acquire the knowledge and information needed to recognize and control chemical hazards in the laboratory;
- Conduct workplace hazard assessments;
- Select and employ laboratory practices and engineering controls that reduce the potential for exposure to hazardous chemicals to the appropriate level;
- Inform those working in the laboratory of the potential hazards associated with the use of chemicals present and instruct them in the safe laboratory practices, adequate controls and procedures for dealing with accidents involving hazardous chemicals;
- Supervise the performance of those working in the laboratory to ensure the required chemical hygiene rules are followed;
- Ensure that those working in the laboratory attend required safety training;

- Obtain approval from the Chemical Hygiene Officer prior to using particularly hazardous substances;
- Develop an understanding of current regulatory requirements relating to the hazardous substances used in the laboratory;
- Ensure that chemical hazardous waste is properly collected, labeled and stored; and
- Inform visitors entering the laboratory of potential hazards and appropriate safety rules and precautions.

Plans are to indicate that those working in a principal investigator's laboratory are responsible for and expected to:

- Be aware of the hazards of the materials he or she is around or working with, and handle those chemicals in a safe manner;
- Undertake operations in accordance with the procedures set forth in the Plan;
- Develop good chemical hygiene (safety practices and procedures) habits;
- Report unsafe conditions to the principal investigator, Department Safety Officer or Chemical Hygiene Officer;
- Attend required safety training;
- Properly collect, label and store chemical hazardous waste; and
- Inform visitors entering the laboratory of potential hazards and appropriate safety rules and precautions.

The Chemical Hygiene Officer, or his or her designee, will annually conduct a safety audit of each department's laboratories, which will include a review of each laboratory's compliance with the Plan, and will report the results of the audit in writing to the principal investigator and his or her department chair. The Chemical Hygiene Officer is also authorized to investigate any alleged, suspected or reported noncompliance with this Plan. To the extent feasible, the Faculty Laboratory Safety Coordinator will accompany the Chemical Hygiene Officer on such safety audits. Audits will specify needed remediation of any hazards or otherwise dangerous conditions and laboratories will be re-inspected within a reasonable time after delivery of the audit findings to the department to make sure the remediation has occurred. (*See IIT Laboratory Inspection Policy*)

## 5. PROCEDURES

In developing its written Plan, each department should ensure that its Plan addresses, as applicable, the following guidelines:

- A. General Requirements** – Each department will evaluate its laboratories and specify PPE requirements. Eating, drinking and storage of food must be prohibited in laboratories. Each department should complete [Appendix A](#), which identifies the laboratory, department, location and responsible faculty members, keep a copy on file in the departmental office and forward one to the Chemical Hygiene Officer and update the document as needed.
- B. Health Hazard Information** – Manufacturers and suppliers of chemicals are responsible for providing health hazard data to end users. This typically comes in the form of a SDS or product specification sheet. Facilities using these materials must evaluate this information and educate the users on the potential hazards a material may present.

- C. Storage** – Chemicals should be segregated and stored by hazard class. Some common classes are: acid, base, flammable and oxidizer. Flammable liquids must be stored in approved flammable liquid cabinets. Lab hoods and bench tops must not be used for long term storage of chemicals. [Appendix B](#) contains a chemical inventory of laboratory form, which a department must complete for each of its laboratories. A copy should be kept on file in the departmental office, and one forwarded to the Chemical Hygiene Officer.
- D. Chemical and Hazardous Waste Accumulation and Disposal** – All chemical wastes generated in the laboratory must be evaluated under the Environmental Protection Agency’s (EPA) Resource Conservation and Recovery Act ([RCRA, 40 CFR 261](#)) to determine the appropriate classification for disposal. The Plan must address chemical and hazardous waste identification, accumulation and disposal. All persons who may generate or handle chemical or hazardous waste must be trained in the appropriate methods of managing this waste in the laboratory. The disposal of all hazardous and chemical waste is handled by the Department of Environmental Health and Safety.
- E. Emergency Response** – In the event of a spill or chemical release or medical emergency, contact IIT Public Safety at 312-808-6363 to report the incident. In the event of a radiological emergency, contact the IIT Radiation Safety Officer at 847-965-1999. In the event of a fire or building evacuation, IIT Emergency Response procedures should be followed. See [IIT Fire & Life Safety Policy Manual](#).
- F. Exposure Control Methods** – Each person working in a laboratory is responsible for following prudent practices. Engineering controls such as hoods, biological safety cabinets and local exhaust ventilation are primary control methods. Personal protective equipment may also be used to control potential exposures.
- G. Lab Hoods/Biological Safety Cabinets** – Lab hoods should be installed to operate at 80-100 feet per minute (fpm) under typical operating sash heights and conditions. Contact the Department of Facilities at 312-567-3320 for hood testing or enter request in HawkWorks work order system through the MyIIT portal.
- H. Medical Examinations** – Faculty, staff and/or students working in a laboratory should have the opportunity for medical consultation and follow-up under the following circumstances:
- Whenever signs or symptoms associated with exposure to a hazardous chemical develop;
  - Air monitoring indicates an exposure level exceeds an established exposure limit for a chemical; or
  - An exposure occurs in the lab or work area.
- I. Particularly Hazardous Substances** – [Appendix C](#) contains an inventory of Particularly Hazardous Substances form, which must list special handling precautions and additional information for each laboratory in which these substances are used and/or stored. The department must complete a form, keep a copy on file in the departmental office and forward one to the Chemical Hygiene Officer.
- J. Training** - Faculty, staff and/or students working in a laboratory must be provided training by the responsible department. At a minimum, training must include: contents of the Plan, availability of

Plan, location of SDSs, potential hazards in the lab, methods to detect the presence of a hazardous chemical, control methods for potential exposures, use of PPE, managing wastes and emergency response actions. The Chemical Hygiene Officer may also require such additional training as is required or reasonable under the circumstances.

**K. Review** – A department must review its Plan as needed but in no event less than every two years to ensure that it is compliant with all applicable laws and IIT policies and to evaluate its effectiveness. Revised Plans must be submitted to the Chemical Hygiene Officer for final approval.

**L. Updates** – A department must complete a new General Lab Information Form, Chemical Inventory Form and Particularly Hazardous Substance Form whenever the department has experienced a material change, such as, but not limited to, the use and/or introduction of a new chemical or the discontinuation of a previously used chemical.

## 5. RECORDKEEPING REQUIREMENTS

The Chemical Hygiene Officer will establish and maintain records of all exposure monitoring performed. Each department will provide training and maintain records for all faculty, staff and/or students working in a laboratory. Copies of training records should be forwarded to the Chemical Hygiene Officer. Copies of laboratory audits will be maintained by the department chair and the Chemical Hygiene Officer.

## 6. APPROVAL

The IIT Safety Policy Committee has reviewed and recommend the adoption of this Policy on September 19, 2005, and this Chemical Hygiene Policy for Lab Safety Standards is approved and effective this 10<sup>TH</sup> day of October 2005. The Safety Policy Committee will review the contents, implementation and effectiveness of this Program no less than annually (but as often as necessary) and will make modifications as necessary to ensure that it meets all required legal and regulatory requirements and is adequately providing a safe and healthful environment for IIT faculty, employees and students. Any modifications to this Policy have been reviewed and approved, and are effective as of the date noted on the cover page.

By: \_\_\_\_\_ /s/ Allan S. Myerson

Provost and Senior Vice President

By: \_\_\_\_\_ /s/ John P. Collins

Vice President for Business & Administration



**APPENDIX A  
GENERAL LAB INFORMATION**

***PLEASE INSERT ALL REQUESTED INFORMATION BELOW FOR EACH LABORATORY USED BY YOUR DEPARTMENT. A COPY THIS FORM SHOULD BE RETAINED IN THE DEPARTMENT OFFICE AND ONE SENT TO THE CHEMICAL HYGIENE OFFICER.***

**NAME OF BUILDING:** \_\_\_\_\_

**LAB/ROOM #:** \_\_\_\_\_

**TYPE OF LAB:** \_\_\_\_\_

**DEPARTMENT RESPONSIBLE:** \_\_\_\_\_

**FACULTY RESPONSIBLE:** \_\_\_\_\_

## APPENDIX B

### CHEMICAL INVENTORY

***PLEASE INSERT ALL REQUESTED INFORMATION BELOW FOR EACH LABORATORY USED BY YOUR DEPARTMENT. A COPY THIS FORM SHOULD BE RETAINED IN THE DEPARTMENT OFFICE AND ONE SENT TO THE CHEMICAL HYGIENE OFFICER.***

CHEMICAL NAME

MAXIMUM QTY ON HAND

HAZARD CLASS

## APPENDIX C

### PARTICULARLY HAZARDOUS SUBSTANCES

*PLEASE INSERT ALL REQUESTED INFORMATION BELOW FOR EACH LABORATORY USED BY YOUR DEPARTMENT. A COPY THIS FORM SHOULD BE RETAINED IN THE DEPARTMENT OFFICE AND ONE SENT TO THE CHEMICAL HYGIENE OFFICER.*

**CHEMICAL NAME:**

**HAZARD:**

**REQUIRED PPE:**

**SPECIAL PRECAUTIONS/OTHER INFORMATION:**

**CHEMICAL NAME:**

**HAZARD:**

**REQUIRED PPE:**

**SPECIAL PRECAUTIONS/OTHER INFORMATION:**

**CHEMICAL NAME:**

**HAZARD:**

**REQUIRED PPE:**

**SPECIAL PRECAUTIONS/OTHER INFORMATION:**

**CHEMICAL NAME:**

**HAZARD:**

**REQUIRED PPE:**

**SPECIAL PRECAUTIONS/OTHER INFORMATION:**

## APPENDIX D

### EMERGENCY CONTACTS

#### Main Campus

##### IIT Public Safety

Emergency 312-808-6363 or Ext 8-6363

Non-emergency 312-808-6300 or Ext 8-6300

Student Health Services 312-567-7550 or Ext 7-7550

##### Department of Environmental Health and Safety (Chemical Hygiene Officer)

Telephone 312-567-3084 or Ext 7-3084

Cell Phone 312-720-2393

Radiation Safety Officer 847-965-1999 (24-hour answering service)

Laser Safety Officer 217-971-6047

#### Moffett Campus

##### **Bedford Park Police and Fire Department**

Emergency 911

Fire Dept. HAZMAT 708-563-4510

##### **Institute for Food Safety & Health**

During business hours: Guard Station (lobby) 708-563-8195

After business hours: Guard Station (gatehouse) 708-563-8280

##### **Safety Contacts**

Ed Steiner - IIT Director of Facilities & Pilot Plant Mobile: 708-308-8911

Karolina Piszczor - IFSH Safety Officer Office: 708-563-8151

Nathan Anderson - Interim Facility Director, FDA Office: 708-924-0602