

PARMLY HEARING INSTITUTE

CHEMICAL HYGIENE PLAN

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APPENDICES

1. Copy of the Standard from the Federal Register, *Occupational Exposures to Hazardous Chemicals in Laboratories. 1910.1450.*
2. Copy of Appendix A from the Standard, *National Research Council Recommendations Concerning Hygiene In Laboratories (Non-mandatory).*
3. Glossary of Terms
4. OSHA *Table Z-1-A- List of Toxic and Hazardous Substances with Limits for Air Contaminates, 1910.1000.*
5. American Conference of Governmental Industrial Hygienists (ACGIH), *Threshold Limit Values for Chemical Substances in the Work Environment*”
6. *Fifth Annual Report on Carcinogens*, National Toxicology Program, National

Institutes of Health.

7. World Health Organization, International Association of Research on Cancer (IARC),
Monographs.
8. Environmental Protection Agency Lists of Hazardous Chemical Waste.
Title 40 Protection of the Environment Parts 261.31,32,33, F,K,U,P Lists.
Appendix A. List of Acutely Hazardous Substances.
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I. INTRODUCTION

The Institute's Chemical Hygiene Plan has been developed in accordance with the requirements of the federal workplace standard governing basic science research laboratory settings. A copy of this standard, developed by the United States Department of Labor, Occupational Safety and Health Administration and entitled *Occupational Exposures to Hazardous Chemicals in Laboratories*, (Code of Federal Regulations 1910.1450) is found in Appendix 1 of this document. The regulation defines a laboratory as a *workplace where relatively small quantities of hazardous chemicals are used on a nonproduction basis and where processes and manipulations can be carried out by a single individual.*

The primary goal of this regulation, which applies to academic basic science and other noncommercial laboratories, is to ensure that workers are informed of the hazards of the chemicals that are used during the performance of their work tasks. Furthermore, the laboratory must provide the worker with education, training, and information on permissible exposure levels, signs and symptoms of exposures, the location and availability of Material Safety Data Sheets (MSDS), as well as defined prudent work practices, and use of personal protective equipment (PPE) and engineering controls required to prevent exposures to hazardous substances.

Additionally, employees must be apprised of any physical hazards contained in the laboratory as well as emergency procedures, access to medical consultation, and general operating procedures indicative of prudent laboratory practice.

The Institute's Chemical Hygiene Plan is a document that details the above topics and is accessible to all employees, students and staff along with other technical references pertaining to principals of laboratory safety. The Hygiene Plan draws upon recommendations from the National Research Council (NRC), as documented in *Prudent Practices for Handling Hazardous Chemicals in Laboratories* (1981 NRC Publication, copy available from the Chemical Hygiene Officer) and in *NRC's Recommendations Concerning Chemical Hygiene in Laboratories (Non-mandatory)* (Appendix 2). These recommendations include widely accepted safe work principals and were made by members of the laboratory community. In addition to chemical hazards, this publication offers guidelines for control of other physical hazards common to laboratories.

Every faculty member, employee and student working directly with lab chemicals must read this document. Furthermore, to reduce the risk of accidents, illness and injury to laboratory staff, all faculty who head lab sections where chemicals are used must enforce the requirements of this document.

Responsibility for controlling hazards and practicing safe science is critical to the success of all laboratory experimentation and data generation and therefore lies with laboratory management since they assign and direct these activities. Employees and students carrying out these tasks must also comply and may be subject to disciplinary action if these requirements are flouted.

The Institute has designated Dr. Richard Fay as the Chemical Hygiene Officer. Dr. Fay will also

serve as a general resource and respond to questions or commentary.

II. Material Safety Data Sheets and Chemical Inventories

Material Safety Data Sheets (MSDS's) are the primary vehicle by which the potential hazards of a substance are communicated. MSDS's are provided by the manufacturer and are legally mandated to contain current established data reflecting the :

*Physical and chemical characteristics (pH, vapor pressure, flash point, reactivity, chemical incompatibilities, etc.) and associated hazards to biological systems (mutagenicity, toxicity, etc.)

*Chemical Abstract Service Registry number (CAS #)

* Permissible Exposure Limits and recommended engineering controls (i.e. fume hoods, biological safety cabinets, PPE, and suggested safe work practices all designed to eliminate exposures via inhalation, absorption, ingestion and injection).

* Recognizable appearances and odors of reagents and first aid measures in case of exposure.

* Accidental release, spill control and disposal information.

Every Parmly lab section using chemicals must maintain a list of chemicals used and/or stored in the lab (chemical inventory) and a repository of MSDS's to reflect the current chemical inventory. MSDS's must be filed alphabetically in a dedicated repository (e.g. notebook or file drawer), which must be accessible to all in the laboratory.

MSDS's are normally sent by chemical manufacturers on the first shipment. Any first time shipments of reagents that contain current data sheets must be retained by the receiving laboratory and filed in the lab repository of MSDS's. Missing or additional copies can be retrieved by contacting the manufacturer directly and giving the catalogue or CAS # to the company's technical division.

Each faculty head of a laboratory section where chemicals are used will be responsible for ensuring that MSDS collections and chemical inventories are maintained. He or she will also be responsible for filing, on an annual basis, a copy of the updated inventory with Parmly's Chemical Hygiene Officer.

Training on how to read and interpret MSDS's will be provided for each individual working with lab chemicals by Parmly or the faculty member responsible for the lab.

III. HAZARDOUS CHEMICALS DEFINED

In a broad sense, a hazardous material is any substance or mixture of substances having properties capable of producing adverse effects on the health or safety of a human being. In a practical sense, however, this definition is of little use without specific criteria for how to identify chemicals causing adverse effects. In 1971, the Occupational Safety and Health Administration (OSHA) developed some precise criteria in its regulations affecting employers (see Hazardous Materials defined in glossary of terms, Appendix 3). Once again, however, these criteria are difficult to apply without the appropriate information. Therefore, for the purposes of this Chemical Hygiene Plan, a substance is defined as hazardous if it can be found on one or more of the lists (enumerated below) contained in Appendices 4 - 8. These lists include chemicals that fall under 6 general categories of hazards: poisons (toxins), corrosives, flammables, explosives, carcinogens, and radioactive materials and that meet the criteria set forth by the original OSHA standards.

Mixtures of chemicals containing one or more hazardous chemical are only considered hazardous if they contain a final concentration of 1% or greater of the hazardous chemical, or in the case of carcinogenic substances, 0.1% or greater. Furthermore, common, commercially-available products, such as glues, epoxies, paints, thinners and cleaning products are exempted from these lists. Nevertheless, workers who use these products in their work should be careful to follow the manufacturer's recommendations for safe use.

Lists of Hazardous Substances

Appendix 4. OSHA, Code of Federal Regulations, 1910.1000, *List of Toxic and Hazardous Substances*, alternately referred to as Table Z-1-A, *Limits for Air Contaminates*,.

Appendix 5. American Conference of Governmental Industrial Hygienists (ACGIH), *Threshold Limit Values for Chemical Substances in the Work Environment*.

Appendix 6. National Toxicology Program (NTP), *Fifth Annual Report on Carcinogens*

Appendix 7. International Agency for Research on Cancer (IARC), *Monographs*, (latest edition) *Category Group I, Carcinogenic to Humans*

Appendix 8. Environmental Protection Agency (EPA), Resource Conservation and Recovery Act (RCRA) *Title 40- Protection of the Environment*, [46 Federal Register 4617, 1981] 261.31,32,33 *Hazardous Wastes F,K,P, and U Listed*.

Of the above lists, those included as appendix 4 and 5 will be most useful to lab workers for a general determination of which chemicals in their lab are hazardous. Appendices 6 and 7 will help to identify only those chemicals that are carcinogenic, whereas Appendix 8 will help to determine which chemicals are considered hazardous wastes by the Environmental Protection Agency.

In addition to the above lists, investigators are urged to check the current MSDS. Please be aware, however, that substances categorized as hazardous by the MSDS might not pose a hazard

to humans in the small volume and concentrations used in a typical basic science lab. For reasons of product liability, the manufacturer may have included bacterial and animal model studies conducted with volumes and concentrations greater than those used in science labs to establish some level of hazard on the MSDS.

IV. Carcinogens, Reproductive Toxins and Acutely Toxic Substances

Parmly's Chemical Hygiene Plan also requires that faculty heads of labs provide additional training on precautionary measures to follow when carcinogens, reproductive toxins or acutely toxic substances are used. The designation of a reagent as a carcinogen or highly toxic substance will be given in the MSDS and/or the label provided by the manufacturer. Reproductive toxins are defined as those substances (a) having lethal effects on fertilized eggs, developing embryos or fetuses, (b) producing teratogenic effects in fetuses or (c) causing infertility in males and females. Hydrogen sulfide and cyanide as well as salts of these compounds are examples of substances that are acutely toxic. Due to the extreme hazardous nature of these chemicals and the potential damage to target organs and possible fatality as a result of a single acute exposure or one of short duration and chronic prior education and careful discussion of performing the protocol is vital. This training must take place prior to work with these substances.

Of vital importance is the need to:

1. Establish a "designated work area" when handling these substances, i.e. a chemical fume hood or portion of a work area that has temporary or permanent signage (in English) apprising anyone entering the lab premises that this is an area where substances of highly hazardous nature are being used. When the task using these substances is complete and the area decontaminated if necessary the sign age may be removed.
2. When not in use these agents shall be stored in a secure cabinet or sealed container.
3. If the manufacturer's label has become defaced or illegible a new one must be affixed containing the identity, potential carcinogenicity and or highly toxic nature of the substance.
4. Avoid breathing vapors, gases or particulate.
5. Avoid contact with eyes, skin and clothing by donning the proper chemical resistant glovewear, safety glasses, goggles and a buttoned lab coat..
6. Conduct all manipulations, weighing, mixing, pouring, pipetting, boiling in a ventilated enclosure such as chemical fume hood.
7. Disposal of waste and contaminated items, accidental spill response and cleanup and procedure for reporting exposures are referenced in forthcoming sections of this Chemical Hygiene Plan.

V. Parmly Laboratory Sections: Standard Operating Procedures for Safe Work Practices and Maintenance of Lab setting.

Attention to good housekeeping impacts the general safety of the lab and supports the University's commitment to fire prevention. A cluttered work space increases the risk of slips, trips, and falls and adds to the amount of readily combustible material. All Parmly staff have the responsibility and obligation to colleagues, students and lab personnel to adhere to safe housekeeping practices. Daily housekeeping measures must include:

1. Access to fire extinguishers and exits should never be blocked.
2. Aisles and walkways must be cleared of chemicals, furniture or stored materials.
3. All work areas, especially lab benches should be clear of clutter and all chemicals should be returned to their proper storage area.

Because few laboratory chemicals are without hazards, general precautions for handling all laboratory chemicals have been adopted. General precautions are based on the principles of minimizing exposure, and the assumption that any mixture of hazardous chemicals is more toxic than the most toxic component. Avoiding unnecessary exposure to chemicals involves the following:

1. Do not smell or taste chemicals.
2. Toxic fumes and vapors should be vented or contained (e.g., by use of a fume hood or charcoal filter.)
3. Inspect gloves and test glove boxes before use.
4. Do not allow the release of toxic substances into cold rooms and warm rooms because these rooms have contained recirculated atmospheres.
5. Use only those chemicals for which the quality of the available ventilation system is appropriate.
6. No eating, drinking, smoking, gum chewing or applying cosmetics or lip balm is allowed in areas where laboratory chemicals are present.
7. Do not store, handle or consume food or beverages in storage areas, refrigerators, glassware, or utensils that are also used for laboratory procedures.
8. Handle and store laboratory glassware with care to avoid damage; do not use damaged glassware. Use extra care with Dewar flasks and other evacuated glass apparatus; shield or wrap them to contain chemicals and fragments should implosion occur.

9. Use equipment only for its designated purpose.
10. Wash areas of exposed skin thoroughly before leaving laboratory.
11. Avoid practical jokes or behavior that might confuse, startle, or distract another worker.
12. Do not pipette by mouth.
13. Confine long hair and loose clothing.
14. Open-toed shoes or sandals must not be worn in the lab at any time.
15. Keep the work area clean and uncluttered; clean up the work area on completion of procedure or at the end of each shift.
16. Ensure that safety goggles are worn by all persons handling solutions of concentrated corrosives.
17. Wear gloves of appropriate design and construction when the potential for contact with toxic materials exists.
18. Use protective and emergency apparel and equipment as appropriate.
19. Remove laboratory coats, gloves and other protective equipment immediately upon significant contamination.
20. Consult MSDS sheets, the Chemical Hygiene Plan, a technical resource and/or safety textbooks before initiation of any unfamiliar procedure.
21. Use a fume hood for any operations that might result in release of toxic levels of chemicals, vapors or dust. As a rule of thumb, a hood or other local ventilation device should be used when working with any appreciably volatile substance with a threshold limit values (TLV) of less than 50 ppm, as identified on the MSDS. **Note:** the fume hood is intended for use with hazardous lab chemicals as defined above and in section III. It is **not** intended for use with common, commercially-available products, such as glues, epoxies, paints and thinners. These products can generally be used with normal room ventilation and do not require handling within the fume hood. **The use of commercially-available aerosol cans, such as spray paints or adhesives, is expressly forbidden in any of Parmly's hoods.**
22. Keep the hood closed to the appropriate level at all times except when adjustments within the hood are being made. Keep materials stored in hoods to a minimum, and do not allow materials to block vents or air flow.

Leave the hood “on” when it is not in active use, if toxic substances are stored in it, or if it is uncertain whether adequate general ventilation will be maintained when it is “off.”

23. Always be on the lookout for possible unsafe conditions in the work area and promptly address those that are identified.

VI. GUIDELINES FOR PROPER STORAGE OF CHEMICALS

The amount of each chemical stored in the laboratory will be kept as small as is practical. Storage of chemicals on bench tops and in hoods may increase the potential for spills and increase the risk of fire. Ventilated cabinets and specially monitored refrigerators are to be used for chemical storage only. No food is permitted in any refrigerator in which chemicals are stored.

1. All concentrated acids and bases are to be stored **only** on shelves below waist level. This practice will decrease the possibility of chemicals being knocked off higher shelves, breaking and splashing onto someone’s face or body.
2. All gallon containers (or larger) of alcohol, acetone, xylene or formalin must be stored in cabinets at an appropriate level preferably below waist level.
3. No more than two gallons (or one day’s supply) of any flammable liquid may be stored in any one room at any one time **UNLESS STORED IN AN APPROVED FLAMMABLE LIQUIDS CABINET**.
4. Ether must be purchased in the smallest volume available and **must** be stored in an open area away from flames and other sources of heat. Check manufacturer's expiration data and **do not** surpass.
5. Secure gas cylinders (refer to Appendix 9 on STORAGE and HANDLING of Compressed Gas Cylinders).

VII. GUIDELINES FOR PROPER LABELING OF CHEMICALS

1. Manufacturers’ labels must be left intact. Do not cover the manufacturer’s label with other labels unless they do not meet current standards. If a label is damaged or removed another label should be put on the container. Never discard an unlabeled chemical, or leave it on a bench top. All chemicals that cannot be identified or rendered non-hazardous at the work site should be labeled as such and set aside in the lab's disposal bin for hazardous wastes (see section VIII).
2. All chemicals, including stock reagents or chemical solutions that are prepared in

the laboratory and in use for longer than a day, must be labeled according to their contents and hazard category as identified on the MSDS:

1. Poison (toxic)
2. Corrosive
3. Flammable
4. Explosive
5. Carcinogenic
6. Radioactive

VIII. PROCEDURES FOR HAZARDOUS WASTE DISPOSAL

There are six general classes for chemical waste: solvents, acids, bases, heavy metals, pesticides, reactives, chlorinated hydrocarbons, cyanide compounds and mercury. If it is possible to keep waste separated into these categories, please do so. The following are specific examples of each category:

Solvents	Acids and Bases	Heavy Metals Pesticides	
acetone	acetic acid	arsenic	aldicarb
benzene	ammonium solution	barium	aldrin
butyl alcohol	chromic acid	cadmium	arsenic pentoxide
cresol	ferric chloride	chromium	chlordane
ethanol	hydrobromic acid	lead	dieldrin
ethyl acetate	hydrochloric acid	selenium	endrin
ethyl ether	potassium hydroxide	silver	methyl parathion
ethyl ketone	sodium hydroxide	zinc	parathion

Solvents	Acids and Bases	Heavy Metals Pesticides	
kerosene	sulfuric acid	cobalt	warfarin
methanol			
methyl			
naphtha			
petroleum solvents			
toluene			
xylene			

Reactives by subclass

- organic peroxide (benzoyl peroxide)
- flammable solid (black powder)
- pyrophoric (butyl lithium)
- peroxide-forming solvent (isopropyl ether)
- water reactive (sodium metal)

air reactive (stannic chloride)
explosive (lead azide)

To dispose of hazardous chemical wastes:

1. Obtain a container that can be closed (a bottle or can with a lid) and that will not react with the waste.
2. Construct a label and attach it to the container. The label must list the hazardous waste category and the chemical components. This is especially important for those chemicals that are in the category known as reactives. All items that are in this category known must additionally have some sort of flag on them (e.g. red tape labeled with large and clear block letters 'hazardous reactives in this container').
3. Place the labeled container in the disposal bin designated for chemical waste pick-up unless storage in this manner would violate good practices for proper chemical storage (see section VIII on Chemical Storage). Fill out the sign-up sheet for hazardous chemical wastes by the disposal bin. If good storage practice dictates that you store the waste elsewhere, indicate the location of the stored waste on the sign-up sheet. The wastes will be picked up every 90 days by Loyola's service for hazardous waste disposal.

To dispose of sharps:

1. Sharps, such as syringe needles, broken glass, used pipettes and razor blades should be disposed of in properly labeled sharps containers located in each lab. Disposal of full containers is accomplished by calling Steve Broderick, Admiral Maintenance Supervisor, at 8-2109 for pick-up. Once the call has been placed, Steve will remove the full container and replace it with an empty one. The full container is then stored in a locked storage facility outside Campion Hall and eventually picked up and incinerated by the Medical Disposal Systems Co.

IX. GUIDELINES FOR HANDLING CHEMICAL SPILLS

These guidelines cover the basic steps in handling the more common chemical spills encountered in the Clinical Laboratories.

Any significant spill (> 1 L) of hazardous material must be documented with a “Report of Incident or Accident.” The Security/Safety Department (Ext. 44911) and Parmly's Chemical Hygiene Officer must be notified of significant spills of hazardous materials.

1. Acids/Bases/Solvents
 - a. Put on protective garb and gloves as indicated on MSDS.
 - b. Contain spill with spill kit using appropriate neutralizer or absorbent.

These kits are located in every laboratory where chemicals are stored or used or are affixed to corridor-walls.

- c. Notify manager of designate.
- d. Consult MSDS regarding proper disposal.
- e. Spills on clothing or skin:
 - *Remove affected clothes IMMEDIATELY. Clothing soaks up caustic liquids
 - *Rinse skin thoroughly with water or use safety showers located in laboratories or hallways outside laboratories.
 - *Call Occupational Health or the Emergency Department for further assistance.
- f. Eye injuries:
 - *Person exposed should notify and seek assistance from a co-worker.
 - *Flush eyes with water from eye wash for at least fifteen minutes.
 - *Call Occupational Health or the Emergency Department for further assistance.

2. Dry Spills

- a. Put on protective garb and gloves as indicated in MSDS.
- b. Sweep powder spills into a plastic bag and dispose of carefully, not to raise dust (as indicated on the MSDS).
- c. Wash the area thoroughly with detergent and water.

3. Mercury Spills

- a. Sprinkle mercury spill absorbent material over the mercury particles. Wet the material with water to form a metal/mercury amalgam.
- b. Sweep up the amalgam and place in closed container (ziploc bag will do). Follow the instructions (see section VIII) for hazardous waste disposal.

X. Guidelines for Limiting Exposures to Hazardous Chemicals

Parmly staff who work with hazardous chemicals must do so in a manner that ensures that the

individual never exceed the permissible exposure limits (PELs) or threshold limit values (TLVs) of the chemical in question. PEL's are the standards established by OSHA and TLV's are those established by the American Conference of Governmental Industrial Hygienists (ACGIH), but both are based on the same units of measurement and are for the most part interchangeable. These limits can be found in the OSHA table in Appendix 5 and in the ACGIH publication in Appendix 6, as well as in current MSDS's. These sources also indicate if the chemical is absorbed via the skin.

Good laboratory practice dictates the use of chemical fume hoods or other ventilated enclosures to prevent all potential exposure via inhalation of potentially hazardous vapors, aerosols and particulate. As a rule of thumb, a hood or other local ventilation device should be used when working with any appreciably volatile substance with a PEL or TLV of less than 50 ppm, as identified on the MSDS. Additionally, the use of personal protective equipment such as chemical resistant gloves and eye and face protection are all vital in eliminating exposures to Parmly staff.

MSDS's are the source of information regarding what particular PPE and engineered devices are recommended. Parmly staff shall evaluate their individual protocols involving chemicals that are hazardous and assess the exposure potential based upon the manipulations, processes, and volumes to be utilized in the specific task, assay or method in question. Staff members with questions or concern about interpretation of the published exposure limits and decisions regarding the selection of PPE needed should contact the Institute's Chemical Hygiene Officer.

The OSHA Table contained in Appendix 5 references additional regulations that apply to certain hazardous reagents and might require representative exposure monitoring and medical evaluations. Parmly sections using any of the following chemicals should contact Parmly's Chemical Hygiene Officer to implement a monitoring program:

- Acrylonitrile
- 2-Acetylaminofluorene
- 4-Aminodiphenyl
- Benzene
- Benzidine
- beta-Naphthalamine
- beta-Propiolactone
- bis-Chloromethyl ether
- 3,3-Dichlorobenzidine and its salts
- 1,2-dibromo-3-chloropropane
- 4-Dimethylaminoazobenzene
- alpha-Naphthylamine
- 4-Nitrobiphenyl
- Methyl chloromethyl ether
- Ethylene imine
- Formaldehyde/Formalin
- N-Nitrosodimethylamine

Vinyl chloride
Inorganic arsenic
Lead

These chemicals require that exposure levels be monitored during tasks representative of how the chemicals are used in the lab. If monitoring results are below the critical values published on the MSDS or the Federal Code of Regulations, then no further monitoring is required. If the results exceed the permissible levels for a specific Ceiling, Action Level, or Short Term Limits, then the monitoring will proceed after corrective actions have been taken to decrease exposure levels. Monitoring will continue until measured values fall below the critical limits. Furthermore, the type of methods used, study parameters used, and frequency of monitoring will be the responsibility of the Chemical Hygiene Officer in conjunction with the laboratory section manager.

Results of all monitoring studies will be shared with the affected employees within fifteen days of the analysis. Notification of results must be in writing to employees by either posting results or contacting staff individually.

If air purifying respirators are required then their selection and use must comply with 29CFR 1910.134.

XI. Personal Protective Equipment (PPE)

A. Lab Coats

Disposable or cloth lab coats will be available to all workers at Parmly using hazardous chemicals where splashing or contamination of clothes is a potential. If cloth coats are used, they **must not be laundered by the employee, student or staff**, but by a professional service retained by Parmly.

1. Lab coats must be closed (buttoned) when worn.
2. Lab coats are **not** to be worn in or removed to areas outside of the designated lab area, except in cases where a related lab function is being performed elsewhere, such as: the handling and transportation of chemical and biological materials to an adjacent or common equipment area.

B. Gloves

1. Appropriate gloves are to be worn by all staff whenever they handle chemicals. Unless otherwise stated on the MSDS, latex rubber gloves are suitable for general use.
2. Heavy duty chemical resistant gloves such as nitrile, neoprene or vinyl are to be worn when recommended by the Material Safety Data Sheets for the substances being used and should be used when cleaning refrigerators, centrifuges, hoods, shelves, and other equipment and bench

surfaces coming in contact with hazardous materials.

3. Information about appropriate glove types can be found on MSDS's, but the following general recommendations can be made:

*neoprene gloves for oils, acids, caustics, alcohols and solvents

*butyl rubber gloves for ketones and esters

*nitrile gloves for formalin and aromatic, halogenated, and petroleum solvents

C. Protective Eye and Face wear

1. Safety Glasses: To be worn when the task involves a very small volume of hazardous substance. i.e. Pipetting solutions.

2. Safety goggles: To be worn when tasks involve manipulating volumes of hazardous substances where splashes could occur. i.e. Pouring, mixing solutions from 100 ml to 1 liter.

3. Face Protection: To be worn when tasks involve dispensing, mixing, pouring volumes greater than one liter.

For assistance in making informed decisions regarding the selection and acquisition of the appropriate PPE, please consult the faculty head of your lab, MSDS's or the Chemical Hygiene Officer.

XII. Parmly Staff Information and Training

Parmly workers, including staff and students, are entitled to training and information about:

1. physical and chemical hazards posed by the lab setting prior to beginning work tasks. This training and education must be documented with this institute and includes information on precautionary measures or specific procedures to be followed in order to reduce or eliminate exposure to hazardous compounds. Every individual who works directly with lab chemicals must read and sign the Institutes Chemical Hygiene Plan and receive additional training on safe lab practices. This rule does not apply to Parmly workers who may, during the course of their work, use only common, commercially available products with chemicals in them, such as glues, epoxies, paints, thinners, aquarium products, etc.

2. the signs and symptoms of an exposure to a hazardous chemical, and the institution's procedure for medical examination and consultation as well as Emergency medical assistance.

3. lab chemicals in use that require exposure monitoring (see list in section XI). The results of

monitoring tests will also be made available to employees.

4. the use, existence and location of the Material Data Sheet repository, the Parmlly Institute Chemical Hygiene Plan and the Federal Standard, *Occupational Exposure to Hazardous Chemicals in Laboratories-29CFR 1910.1450*.

5. the location and availability of PPE, chemical fume hoods, fire extinguishers, evacuation routes, chemical spill control materials, and other relevant materials.

XIII. EMERGENCY PHONE NUMBERS

General

Campus Security (in the event of serious injury)		44911
Ambulatory injury	Student Health Service - Lower Level of Campion on Loyola Avenue	82530
Emergency Room & Poison Control	St. Francis Hospital 355 Ridge Avenue at Oakton, Evanston	(847) 316-2440

Accidental Poisoning Response- 24 Hours

Rush Presbyterian-St. Lukes Poison Control Center	312-942-5969
Chem Trec (Chemical Manufacturers' Association Emergency Response Center)	800-424-9300