

SAMPLE WRITTEN

CHEMICAL HYGIENE PLAN

This is a sample written chemical hygiene plan. It must be tailored for use in your facility. Attempting to provide a written program for your employees will show a good faith effort to OSHA should you be inspected. This would normally be taken into account if citations are developed.

This material and Safety and Health Consultation Services are provided free of charge to owners, proprietors, and managers of small businesses by the Illinois Department of Commerce and Community Affairs under a program funded largely by the Occupational Safety and Health Administration (OSHA), an agency of the U.S. Department of Labor.

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CHEMICAL HYGIENE PLAN
for
enter company name

The general intent of the chemical hygiene plan is to protect laboratory employees from health hazards associated with the use of hazardous chemical in our laboratory and to assure that our laboratory employees are not exposed to substances in excess of the permissible exposure limits as defined by OSHA in 29 CFR 1910 subpart Z. **Insert name** is designated as the Chemical Hygiene Officer. **The qualifications for this individual are important. This person should have a background in both chemistry and safety. See Section VII for details.** The Chemical Hygiene Officer will keep a copy of the plan and make it available to all employees for review. The plan will be reviewed annually and updated as necessary.

I. Standard Operating Procedures to be followed in the laboratory relevant to safety and health when using chemicals.

These are general procedures of laboratory operation which you likely already have in effect. Section E of Appendix A of 1910.1450 lists the following considerations:

- | | |
|------------------------------------|---------------------------|
| A. Accidents, spills | J. Personal housekeeping |
| B. Avoidance of routine exposure | K. Personal protection |
| C. Choice of chemicals | L. Planning |
| D. Eating, drinking, smoking, etc. | M. Unattended operations |
| E. Equipment and glassware | N. Use of hood |
| F. Exiting | O. Vigilance |
| G. Horseplay | P. Waste disposal/storage |
| H. Mouth suction | Q. Working alone |
| I. Personal apparel | |

Section F of Appendix A of 1910.1450 includes additional safety recommendations:

- | | |
|------------------------------------|--|
| A. Corrosive agents | E. Low temperature procedures |
| B. Electrically powered operations | F. Pressurized and vacuum laboratory apparatus |
| C. Fires, explosions | G. Compressed gases |
| D. Chemical Storage | |

Attached to this plan are the standard operating procedures in place for the safe handling of chemicals in our laboratory. **[Often this will be your laboratory safety manual which is already in place. If you have the following programs, they can also be referenced.]**

- The written portion of the laser safety program is located: **enter appropriate information**
- The written portion of the radiation safety program is located: **enter appropriate information**
- The written portion of the biological safety program is located: **enter appropriate information**

II. Criteria for Use of Control Measures to Reduce Employee Exposure to Hazardous Chemicals

- A. The following operations shall be in laboratory fume hoods: **enter appropriate information**
- B. The following operations shall be performed in biological safety cabinets: **enter information**
- C. The following operations shall be performed in glove boxes: **enter appropriate information**
- D. Respirators shall be used in accordance with our respiratory protection policy and with the OSHA respirator standard 29 CFR 1910.134. This policy and associated documentation is available for employee review.

- E. Appropriate protective apparel compatible with the required degree of protection for substances handled shall be used. The supervisor will advise employees on glove, gown, eye protection, barrier creams, etc. use. Permeability charts are available **enter appropriate information**.
- F. Employees will be instructed on the location and use of eye wash stations and safety showers. The supervisor is responsible for this instruction.
- G. Employees will be trained at least annually on the use of fire extinguishers and other fire protection systems.

III. Maintenance of Fume Hoods and Other Protective Equipment

- A. Fume Hoods will be inspected every **(insert frequency)** months by **(insert name or position)**; adequacy of face velocity will be determined by **(insert method here)**; reports of hood inspections are filed **(insert location)** for employee review.

Repeat the above for each additional major category of protective equipment such as Biological Safety Cabinet, Ventilation of Storage Cabinets, Interlocks on High Voltage Equipment, Safety Showers, Eyewash Stations, etc., indicating how often they are inspected, by whom, what is measured, and where the inspection records and checklists are filed.

IV. Employee Information and Training

- A. Each employee covered by the laboratory standard will be provided with information and training so that they are appraised of the hazards of chemicals present in their work area. This training will be given at the time of initial assignment and prior to new assignments involving different exposure situations. Refresher training will be given **(insert how often)**.
- B. The training/information sessions shall include:
 - The contents of 1910.1450 and its appendices which are always available to employees.
 - The availability and location of the written chemical hygiene plan.
 - Information on OSHA permissible exposure limits (PELs) where they exist, and other recommended exposure limits.
 - Signs and symptoms associated with exposure to hazardous chemicals in laboratories.
 - Location of reference materials, including all MSDSs received, on the safe handling of chemicals in
 - Methods to detect the presence or release of chemicals (i.e. monitoring, odor thresholds, etc).
 - The physical and health hazards of chemicals in laboratory work areas.
 - Measures to protect employees from these hazards, including: Standard operating procedures; Work practices; Emergency procedures; and Personal protective equipment
 - Details of the chemical hygiene plan.
- C. **Insert name of position** is responsible for conducting the training sessions which will consist of **insert training methods, e.g. videotape, slide tape, lecture, etc.** An outline of the training program is attached. **[An outline is included in this packet, which can be modified for your use.]**
- D. Each employee will sign a form documenting that they have received training.

Sample form included in this packet. Note that a signed form does not necessarily mean that person has understood and retained the training provided. An enforcement officer would determine training based on employee interviews, and employee knowledge.

- A. **Insert name or position** is responsible for developing standard operating procedures and for training on the procedures.

V. **Prior Approval for Specific Laboratory Operations.** Certain laboratory procedures which present a serious chemical hazard require prior approval before work can begin. For this facility, these procedures include:

- A. Work with select carcinogens
- B. Work with reproductive hazards
- C. Work with neurotoxin (consider the 8 physical hazards as well as the health hazards in this determination.) These chemicals include: **insert a list of the acutely hazardous chemicals, for example: cyanide.**

If the laboratory does not utilize these classes of chemicals then include a sentence which states "Our laboratory does not at this time use any chemicals which are sufficiently hazardous to require prior approval before they are used."

VI. **Medical Consultation and Examination.** We provide to affected employees, medical attention including follow up examinations which the physician determines is necessary under the following circumstances:

- A. Whenever an employee develops signs and symptoms associated with a hazardous chemical to which they may have been exposed, the employee shall be provided an opportunity to receive appropriate medical examination. The employee shall contact the Chemical Hygiene Officer to initiate the medical program.
- B. Where exposure monitoring reveals an exposure level routinely above the OSHA action level (AL) (or in the absence of an action level, exposure above the OSHA permissible exposure level [PEL]) for OSHA regulated substances for which there are medical monitoring and medical surveillance requirements, medical surveillance shall be established for that employee. Currently our laboratory uses the following substances all of which have a separate OSHA standard with medical surveillance requirements.

1. _____ (e.g. Benzene).
2. _____ (e.g. Formaldehyde).
3. _____ (list other substances covered)

If none of these substances is used, indicate that no substance for which OSHA has medical monitoring requirements are being used.

- C. Whenever an event takes place in the work area, such as a spill, leak, explosion or other occurrence resulting in the likelihood of a hazardous exposure, the affected employee, laboratory or custodial, shall be provided an opportunity for a medical consultation. This consultation is for the purpose of determining the need for a medical examination.
- D. All medical examinations and consultations are provided by **(insert physician's name or insert clinic/hospital name)**. All aspects of these examinations are provided by a licensed physician, or supervised by a licensed physician. These examinations are provided without cost to the employee, without loss of pay, and at a reasonable time and place.
- E. The Chemical Hygiene Officer will provide the following information to the physician:
- Identity of the hazardous chemical to which the employee may have been exposed.
 - A description of the conditions of the exposure including exposure date if available.

- A description of the signs and symptoms of exposure that the employee is experiencing (if any).

F. The written opinion that the company receives from the physician shall include:

- Recommendations for future medical follow up.
- Results of examination and associated tests.
- Any medical condition revealed which may place the employee at increased risk as the result of a chemical exposure.
- A statement that the employee has been informed by the physician of the results of the examination/consultation and told of any medical conditions that may require additional examination or treatment.

G. The material returned to our company by the physician shall **NOT** include specific findings and diagnosis which are unrelated to occupational exposure.

VII. Responsibilities under the Chemical Hygiene Plan. A Chemical Hygiene Officer has been designated **OR** a chemical hygiene committee shall be formed. The membership list and minutes of their meetings are filed for employee review.

At this point, you may want to follow the categories in Appendix A of the Lab Standard 1910.1450 and assign some chemical hygiene duties to all staff. The categories used in the appendix are: Chief Executive Officer, Department Supervisor, Chemical Hygiene Officer, Laboratory Supervisor, Project Director, Laboratory Worker. You may wish to designate your existing safety committee or a sub group of that committee as your chemical hygiene committee.

VIII. Additional Protection for Work with Select Carcinogens, Reproductive Toxins, and Chemicals with High Acute Toxicity. When any of these chemicals are used, the following provisions shall be employed where appropriate:

- Establishment of a designated area.
- Use of containment devices such as fume hoods or glove boxes.
- Procedures for safe removal of contaminated waste.
- Decontamination Procedures.

The special procedures used in this laboratory for the use of these chemicals is attached.

Appendix A of the standard has detailed programs for working with these chemicals. If you are using them, refer to Appendix A, as a guide for your detailed procedures. Note that according to the standard, a **select carcinogen** means any substance which meets one of the following criteria:

- it is regulated by OSHA as a carcinogen; or
- it is listed under the category, "known to be carcinogens," in the Annual Report on Carcinogens published by the National Toxicology Program (NTP) (latest edition); or
- it is listed under Group 1 ("carcinogenic to humans") by the International Agency for Research on Cancer Monographs (IARC) (latest editions); or
- it is listed in either Group 2A or 2B by IARC or under the category, "reasonably anticipated to be carcinogens" by NTP.

IX. Emergency Response. Our emergency action plan under 1910.38 and emergency response plan under 1910.120 is attached.

There are two additional OSHA standards which interface with the Chemical Hygiene Plan; 1910.38 Employee Emergency Plans and Fire Prevention Plans, and 1910.120(p) and (q) Hazardous Waste Operations and Emergency Response (developed in response to SARA Title III). Please review these two standards and develop appropriate emergency procedures for your facility if your facility is covered by one of these standards.

LABORATORY STANDARD TRAINING OUTLINE

1. Occupational exposure to hazardous chemicals in laboratories standard (29CFR1910.1450).				
↓ Content of the standard and appendices.				
↓ Location and explanation of the chemical hygiene plan.				
↓ Location of reference materials and material safety data sheets (MSDS)				
↓ Details of access to medical consultation and management system.				
2. Physical Hazards				
A. Combustible liquids		E. Organic peroxide		
B. Compressed gas		F. Pyrophoric		
C. Explosive		G. Unstable (reactive)		
D. Flammable		H. Water reactive		
3. Health Hazards				
Local		Systemic		
Irritants	Corrosives	Toxics (acute/chronic; nervous system effects; respiratory system effects; reproductive system effects)	Sensitizers	Carcinogens
4. Routes of Exposure				
Inhalation		Skin Absorption	Ingestion	
5. Amount of Absorption				
Gases/Vapors		Particulates (dust, mist, fume)		
6. Dose				
Work practices	Personal hygiene	Weight	Personal protective equipment	Environmental controls
7. Duration of Exposure				
8. Exposure Limits including PELs				
A. Definition		B. Established by chemical similarity; animal studies; human studies		
9. Air Sampling				
Required by OSHA	Employee reports of illness	Confined space work	Other	
10. Response				
A. Age		D. Health Status		
B. Gender		E. Personal Habits		
C. Body Size		F. Other Exposures		
11. Employee Concerns				
A. Symptoms limited/many causes		C. Referral		
B. Documentation		D. Refusal to work		
12. Company Specific Standard Operating Procedures				

