

OSHA Laboratory Standard: 1910.1450

## Occupational Exposure to Hazardous Chemicals in Laboratories

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# FFY 2007 – Industries with citations in 1910.1450

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## SIC Industry Nr - 4 digit

#Cited	#Insp	\$Penalty	Industry Classification
4	2	2455	8734/Testing Laboratories
3	1	3938	8221/Colleges, Universities, and Professional Schools
3	2	525	8731/Commercial Physical and Biological Research
2	1	900	2834/Pharmaceutical Preparations
1	1	0	8733/Noncommercial Research Organizations
1	1	0	9711/National Security
1	1	0	4953/Refuse Systems
1	1	1750	3567/Industrial Process Furnaces and Ovens
1	1	2000	2869/Industrial Organic Chemicals, Not Elsewhere Classified
1	1	0	8071/Medical Laboratories

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## (a) Scope

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- **All employers engaged in laboratory use of hazardous chemicals**
- **Supercedes, for laboratory, the requirements of all other health standards in Subpart Z except:**
  - **the PEL's**
  - **must observe prohibition of skin & eye contact in any OSHA health standard**
  - **medical surveillance applies if action level (AL) or PEL exceeded**

# Scope (cont.)

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- **Section does not apply to:**
- **Uses of hazardous chemicals which do not meet definition of laboratory use**
- **Or where laboratory use provides no potential for employee exposure**
  - dip and read tests
  - commercial kits (i.e. pregnancy tests)

## **(b) Definitions**

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- **There are 27 definitions in this section, some include:**
- **Chemical Hygiene Officer**
- **Chemical Hygiene Plan**
- **Hazardous Chemical**
  - **OSHA regulated**
  - **NTP**
  - **IARC group 1**
  - **IARC group 2A or 2B**

# Definitions (cont.)

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- **Laboratory use of Hazardous Chemical**
  - **carried out on laboratory scale**
  - **multiple chemical procedures or chemicals are used**
  - **not part of production procedures**
  - **protective laboratory practices and equipment available**

# Definitions (cont.)

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- **Laboratory scale- excludes production facilities**
- **Medical Consultation**
- **Select Carcinogen**

# (c) Permissible Exposure Limits (PEL's)

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- **Exposure cannot exceed PEL's**

# (d) Employee Exposure Determination

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- **Initial Monitoring**
  - **must monitor if specific standard requires it or if reason to believe action level or PEL are exceeded**
- **Periodic Monitoring**
- **Termination of Monitoring**
- **Employee notification of monitoring results within 15 working days of receipt of results**

## **(e) Chemical Hygiene Plan**

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- **Develop and execute a written plan to prevent employee exposure to hazardous chemicals:**
  - **capable of protecting employees in laboratories**
  - **capable of keeping exposures below PEL's**
- **Made readily available to employees and employee representatives**

# Plan (cont.)

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- **It must include**
  - **Standard Operating Procedures**
  - **control measures (engineering, PPE, etc.)**
  - **fume hood inspection & maintenance**
  - **information & training for employees on health hazards and appropriate protection**
  - **operations which require prior approval**
  - **provisions for medical consultation & examination**

# Plan (cont.)

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- **naming chemical hygiene officer and setting up chemical hygiene committee**
- **provision of additional employee protection for select carcinogens, reproductive toxins & acute toxics**
  - **designated area**
  - **proper hoods or glove boxes**
  - **waste removal**
  - **decontamination procedures**
- **Annual evaluation of plan**

## **(f) Employee Information & Training**

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- Employers must provide to employees training & information on the hazards of chemicals in their work area**
- Provided at the time of initial assignment or when new hazards introduced**
- Frequency of refresher training & information determined by employer**

# Training (cont.)

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- **Employees shall be informed of:**
- **Contents of Standard & appendices**
- **Location & availability of chemical hygiene plan**
- **PEL's & other recommended levels**
- **Signs & symptoms associated with chemical exposure**
- **Location & availability of reference materials on chemicals including MSDS's**

# Training (cont.)

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- **Training shall include**
- **Methods to detect presence of hazardous chemicals (ie. monitoring)**
- **Physical & health hazards of chemicals**
- **Protective measures for employees(ie. Engineering controls, work practices, emergency procedures, PPE.)**
- **Applicable details of chemical hygiene plan**

# **(g) Medical Consultation & Examinations**

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- **Employers shall provide to covered employees medical attention & follow-up examinations:**
  - **whenever an employee develops sign & symptoms associated with chemical exposure**
  - **where monitoring reveals exposure above the action level or PEL**
  - **emergency situations (ie. spills, leaks, etc.)**

# Medical (cont.)

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- **All medical examinations and consultations must be provided by , or supervised by, a licensed physician at no cost to the employee**
- **Information to physician**
  - **identity of chemical in exposure incident**
  - **conditions of exposure, qualitative data if available**
  - **signs & symptoms experienced by employee**

# Medical (cont.)

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- **For examination or consultation under standard, a physician written opinion is required including:**
  - **recommendations for further medical follow-up**
  - **results of exam & tests**
  - **medical conditions which may put employee at further risk**
  - **statement that employee and been informed by physician of findings**



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Written Opinion Shall Not  
Reveal Specific Findings or  
Diagnosis Unrelated to  
Occupational Exposure

## **(h) Hazard Identification**

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- **Labels and MSDSs**
- **Labels on chemicals containers shall not be removed or defaced**
- **Maintain and make assessable the chemical MSDSs received**

# Hazard ID (cont.)

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- **For chemical substances developed in the laboratory**
  - **If composition known & is hazardous then appropriate training is required**
  - **If by-product composition is unknown, assume hazardous and include in chemical hygiene plan**
  - **If produced for another user outside the laboratory, 1910.1200 Haz Com Standard applies & MSDS must be prepared and appropriate label required**

## **(i) Use of Respirators**

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- When respirators are needed to keep exposure below the PEL:**
- They shall be provided at no cost to the employee**
- Be used in accordance with the Respiratory Protection Standard 1910.134**

## **(j) Recordkeeping**

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- **Employer shall maintain records for each employee on medical consultations, surveillance, overexposures, etc.**
- **All medical and exposure records shall be kept in accordance with the Employee Access to Medical Records Standard, 1910.1020**

## **(k) Dates**

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- **The effective date of the standard was May 1, 1990**
- **All aspects of the standard should be fully in place**

# (I) Appendices

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- **These are informational and are not intended to create additional obligations on the employer or to detract from existing obligation**
- **Appendix A-National Research Council Recommendations Concerning Chemical Hygiene in Laboratories (non-mandatory)**

# Appendix A (cont.)

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## ○ **General Principles**

- **minimize all chemical exposures**
- **avoid underestimation of risk**
- **provide adequate ventilation**
- **institute a chemical hygiene program**
- **observe the PEL's and TLV's**

# Appendix A (cont.)

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- **Responsibilities**
  - **chief executive officer**
  - **supervisor of administrative unit**
  - **chemical hygiene officer**
  - **laboratory supervisor**
  - **project director**
  - **laboratory worker**

# Appendix A (cont.)

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- **The Laboratory Facility**
  - **design**
  - **maintenance**
  - **usage**
  - **ventilation**

# Appendix A (cont.)

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- **Components of the Chemical Hygiene Plan**
  - **basic rules and procedures**
  - **chemical procurement, distribution & storage**
  - **environmental monitoring**
  - **housekeeping, maintenance & inspections**
  - **medical program**

# Appendix A (cont.)

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- **personal protective apparel & equipment**
- **records**
- **signs & labels**
- **spills & accidents**
- **training & information**
- **waste disposal**

# Appendix A (cont.)

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- **General Procedures for working with Chemicals**
  - **general rules for all laboratory work with chemicals**
  - **allergens & embryo-toxins**
  - **chemicals of moderate chronic or high acute toxicity**
  - **chemicals of high chronic toxicity**
  - **animal work with chemicals of high chronic toxicity**

# Appendix A (cont.)

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- **Safety Recommendation**
- **Material Safety Data Sheets**

# Appendix B References non-mandatory

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- **Materials for the development of the Chemical Hygiene Plan (12 items)**
- **Hazardous substance information (14 items)**
- **Information on ventilation (5 items)**
- **Information on availability of reference material (2 items)**

# Questions / Contact Information



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