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EMS Procedure	OSHA 1048	Revision Number	1
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## FORMALDEHYDE EXPOSURE CONTROL PLAN, 29 CFR 1910.1048

The University of The District of Columbia Formaldehyde Exposure Control Plan is designed to inform employees of potential dangers associated with workplace exposure to formaldehyde, as mandated by Occupational Safety and Health Standard, (OSHA) 1910.1048. Workplace formaldehyde exposures shall be maintained at or below the permissible exposure level (PEL) of 0.75 parts per million (ppm) and the short term exposure limit (STEL) of 2.0 ppm per 15 minutes of exposure.

Procedures are specified for regulatory compliance and protection of employee safety and health. Procedures are also specified for industrial hygiene investigation, labeling, institution of engineering controls, utilizing personal protective equipment, and employee training.

### DEFINITIONS:

**Action Level** - Term used by OSHA and NIOSH (National Institute of Occupational Safety and Health) to express the level of toxicant which requires medical surveillance, usually one-half the Permissible Exposure Limit (PEL).

**Formaldehyde** - The chemical substance, HCHO, Chemical Abstracts Service Registry No. 50-00-0. A clear, water-white gas or liquid with a pungent odor. Formaldehyde is an irritant to the skin at concentrations as low as 0.1 ppm. Mild tearing of the eyes and irritation of the upper respiratory airways can also occur at this level. High exposures are associated with severe cough and bronchial spasms as well as Central Nervous System (CNS) effects such as headaches and dizziness. Immunogenic responses include dermatitis and asthma. Acute overexposure can lead to pneumonitis and death. Formaldehyde has also been linked with neuropsychiatric disturbances including headache, irritability and depression. The National Institute for Occupational Safety and Health (NIOSH) has identified formaldehyde as a potential human carcinogen.

**Permissible Exposure Limit (PEL)** - A chemical exposure limit that is published and enforced by OSHA as a legal limit. The PEL is usually referred to as a concentration averaged over an 8-hour work shift, and termed the PEL-time weighted average (TWA).

**Short Term Exposure Limit (STEL)** - The maximum concentration to which workers can be exposed for a short period of time (usually 15 minutes). Workers may only be exposed to the STEL four times throughout the day with at least one hour between exposures.



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### **Controlling Exposures**

Occupational exposure should be reduced through safe work practices, proper ventilation, industrial hygiene evaluation, periodic air sampling, and the use of personal protective equipment.

#### **A. TRAINING**

All employees who are assigned to workplaces where there is exposure to formaldehyde at or above 0.1 ppm shall participate in a training program. The work area supervisor or a designated person shall provide training to employees at the time of initial assignment, whenever a new exposure to formaldehyde is introduced into the work area and annually thereafter. The training program shall include at least the following:

- A discussion of the contents of this regulation and the contents of the applicable Material Safety Data Sheet (MSDS).
- The purpose for and a description of the medical surveillance program required by this standard, including:
- A description of the potential health hazards associated with exposure to formaldehyde and a description of the signs and symptoms of exposure to formaldehyde. As a minimum, specific health hazards that the employer shall address are as follows: Cancer, irritation and sensitization of the skin and respiratory system, eye and throat irritation, and acute toxicity.
- Instructions to immediately report to the work area supervisor and seek medical attention upon the development of any adverse signs or symptoms that the employee suspects are attributable to formaldehyde exposure.
- A description of operations in the work area where formaldehyde is present and an explanation of the safe work practices appropriate for limiting exposure to formaldehyde in each job.
- The purpose for, proper use of, and limitations of personal protective clothing and equipment.
- Instructions for handling spills, emergencies, and clean-up procedures.
- An explanation of the importance of engineering and work practice controls for employee protection and instructions in the use of these controls
- A review of emergency procedures including the specific duties or assignments of each employee in the event of an emergency.



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## **B. Labeling Requirement**

Hazard warning labels complying with the requirements of the Hazard Communication Standard (29 CFR 1910.1200) shall be affixed to all containers of materials. Access to these regulated areas will be limited to authorized persons who have been trained to recognize the hazards of formaldehyde.

Regulated Areas - When the concentration of airborne formaldehyde in an area exceeds the PEL or STEL, all entrances shall have signs bearing the following information:

**DANGER  
FORMALDEHYDE  
IRRITANT AND POTENTIAL CANCER HAZARD  
AUTHORIZED PERSONNEL ONLY**

### Information on labels

0.1 PPM to 0.5 PPM - As a minimum, labels on all materials capable of releasing formaldehyde at levels of 0.1 ppm to 0.5 ppm, shall identify that the product contains formaldehyde; list the name and address of the responsible party; and state that physical and health hazard information is readily available from both the employer and from Material Safety Data Sheets.

Above 0.5 PPM - Materials capable of releasing formaldehyde at levels above 0.5 ppm, shall have labels appropriately addressing all hazards as defined in this document (including respiratory sensitization), and shall contain the words "Potential Cancer Hazard."

## **C. Personal Protective Equipment**

Personal protective equipment and clothing shall be provided at no cost to the employee and includes (as needed):

- Clothing (cover gown or apron) made of material impervious to formaldehyde.
- Face shields and/or safety goggles.
- Gloves.
- Respiratory protection as needed.

All required protective clothing and equipment shall be repaired or replaced as necessary to assure its effectiveness.



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**C. Personal Protective Equipment (continued)**

Contaminated Materials - Only persons trained by the work area supervisor to recognize the hazards of formaldehyde can remove contaminated material from storage areas for purposes of cleaning, laundering, or disposal. No employee may take home equipment or clothing that may be contaminated with formaldehyde.

Laundering - University of The District of Columbia shall inform any person who launders, cleans, or repairs such clothing or equipment of formaldehyde's potentially harmful effects, and of procedures to safely handle the clothing and equipment.

Respirator Use - It is not anticipated that respirators will be used to maintain exposure levels below the PEL, STEL or Action Level. However, if they are needed the following requirements will apply:

- Negative pressure respirators will be issued.
- All employees shall have qualitative or quantitative face fit-tests at the time of initial fitting and annually thereafter. EH&S must be contacted for fit-testing.
- Respirators are provided at no cost to the employee. Funding will be provided by each department.
- Where air-purifying chemical cartridge respirators are used to reduce exposure to below a PEL or STEL, the cartridges shall be replaced after three hours of use or at the end of the work shift, whichever is sooner, unless the cartridge contains a NIOSH-approved end-of-service indicator to show when breakthrough occurs.
- Employees may leave the work area to wash their faces and respirator face pieces as needed to prevent skin irritation from respirator use.
- The OSHA Respiratory Protection Standard (29 CFR 1910.134) shall be followed.

**D. Exposure Monitoring**

Exposure Evaluation

Either employee exposure monitoring or evaluation of exposures shall be conducted periodically by the University of The District of Columbia. The evaluation process shall be repeated each time there is a change in production, equipment, process, personnel or control measures that result in new or increased exposure to formaldehyde. The determination of potential release is taken from objective data indicating the extent of potential formaldehyde release under reasonably foreseeable conditions can be used in making the determination of potential release.



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### Overexposure

When determining whether an employee may be experiencing signs and symptoms of possible overexposure to formaldehyde, the employer may rely on the following:

***Evidence that signs and symptoms associated with formaldehyde exposure will occur only in exceptional circumstances when airborne exposure is less than 0.1 ppm and when formaldehyde is present in material in concentrations less than 0.1 percent.***

When reports of signs and symptoms of respiratory or dermal conditions associated with formaldehyde exposure occur, the affected employee shall be promptly evaluated by the employee's physician.

### Monitoring Frequency

Monitoring will be conducted as follows:

- If the last monitoring results reveal employee exposure at or above the action level, the employer shall repeat monitoring of the employee exposure at least every 6 months.
- If the last monitoring results reveal employee exposure at or above the STEL, the employer shall repeat monitoring of the employee exposure at least once a year under worst case conditions.
- Monitoring will be conducted as stated above until results are achieved that are below the action level or STEL for two consecutive sampling periods. When exposures in an area are determined to be below the PEL or STEL, that area will be evaluated on a regular schedule, as determined by Environmental Health & Safety and work area supervisor.

Reporting Results - Employee monitoring results shall be reviewed within 15 days of receiving the results, and posted or distributed for employee review. When the exposure is over 0.5 ppm, a written plan from Risk Management to reduce employee exposure will be given to each employee. The plan will describe the corrective actions being taken to decrease the exposure.



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### Medical Surveillance

The University of the District of Columbia shall institute medical surveillance programs for all employees exposed to formaldehyde concentrations at or exceeding the action level (0.5 ppm/ 8hr-TWA) or exceeding the 15 minute STEL (2 ppm). Medical surveillance shall be made available for employees who develop signs and symptoms of overexposure to formaldehyde and for all employees exposed to formaldehyde during emergencies. All medical procedures, including the administration of the medical disease questionnaire, shall be performed according to the provisions of 29 CFR 1910.1048. Medical surveillance will be performed without cost or loss of pay to the employee and at a reasonable time.

### Engineering Controls and Work Practices

Engineering controls (including local exhaust ventilation) will be used to control exposure when feasible.

### Equipment Inspection

Visual inspections shall be conducted periodically by the work area supervisor to identify potential sources of exposure to formaldehyde, and if discovered, reported to EH&S.

## **E. Emergency Equipment and Spill Procedures**

Emergency Showers - If there is the potential for an employee's skin to be splashed with solutions containing one percent or greater of formaldehyde, conveniently located quick drench showers shall be provided.

Eyewashes - If there is any possibility that an employee's eyes may be splashed with solutions containing 0.1 percent or greater formaldehyde, eyewash facilities shall be provided within the immediate work area for emergency use.

### **Spills**

**Small Spills (<100ml)** - Cleanup of small spills shall include the wearing of formaldehyde resistant personal protective equipment (e.g.: gown, gloves, shoe covers, goggles, etc.). Spill kits or adsorbent may be used. Contact Environmental Health & Safety to request removal services of the waste resulting from the spill.

**Major Spills (>100ml)** - Evacuate the area. Restrict access. Notify the Campus Police (4-5050) for chemical spill response.



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## **F. RECORD KEEPING**

1. Risk Management will ensure ***environmental monitoring records*** are kept for 30 years and include:

- The date of measurement.
- The operation being monitored.
- The methods of sampling and analysis and evidence of their accuracy and precision.
- The number, durations, time, and results of samples taken.
- The types of protective devices worn.
- The names, job classifications, social security numbers, and exposure estimates of the employees whose exposures are represented by the actual monitoring results.

2. All ***medical records*** will be maintained for the length of employment plus 30 years.

3. Risk Management will maintain respiratory fit records for the length of employment plus 30 years and will include:

- A copy of the protocol selected for respirator fit-testing.
- A copy of fit-testing results.
- The date of the most recent fit-testing, the name and social security number of each tested employee, and the respirator type and face piece selected.



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**APPENDIX A  
OSHA REGULATION 29 CFR 1910.1048  
FORMALDEHYDE**

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