



Formaldehyde Exposure Control Policy

POLICY AND PROCEDURES FOR WORKING WITH FORMALDEHYDE

Policy: It is Columbia University (CU) policy to maintain formaldehyde exposure below the action level (AL) 0.5 ppm, permissible exposure limit (PEL) 0.75 ppm and/or short-term exposure limit (STEL) 2.00 ppm.

Purpose: To ensure hazards associated with formaldehyde use are anticipated, recognized, evaluated, controlled and that information concerning these hazards is communicated to affected employees consistent with the Federal Occupational Safety and Health Administration (OSHA) Formaldehyde Standard 29 CFR 1910.1048.

Applicable: Columbia University personnel who use or come in contact with formaldehyde under normal working conditions or during emergencies.

Compliance Procedure:

1. If an employee's exposure is at or above the AL and/or STEL, the Supervisor shall take appropriate corrective action including:
 - a. Suspend the use of formaldehyde in the affected area;
 - b. Assess the work practices of the affected employee;
 - c. Develop a written plan describing corrective actions being taken to reduce exposure below the action level and/or STEL;
 - d. Provide a copy of the plan to the affected employee;
 - e. Ask employee to complete medical disease questionnaire and seek medical evaluation at the Occupational Health Service (OHS);
 - f. Institute appropriate engineering controls;
 - g. Consider product substitution.
2. Facilities Operations in conjunction with EH&S shall be requested to evaluate the area for the feasibility of installing engineering controls.
3. If corrective measures do not maintain exposure below the action level and/or STEL, after consultation with the EH&S Office, the affected employee shall be supplied with an appropriate respirator.

A. EXPOSURE MONITORING

1. Employees potentially exposed to formaldehyde shall be identified by various means, classified into exposure groups and included in the sampling strategy.
2. Monitoring shall be repeated upon notification by the supervisor, each time there is a change in production, equipment, process, personnel or control measures which may result in a new or additional exposure to HCHO.
3. Monitoring shall be repeated at the request of an employee or when any employee reports signs or symptoms of respiratory or dermal conditions associated with formaldehyde exposure.
4. Determination of an employee's exposure shall be made from breathing zone air samples that are representative of 8-hour and/or 15 minute monitoring.
5. If, after implementing engineering controls, exposure is at or above the action level and/or STEL, follow-up monitoring shall be conducted under worst-case exposure conditions:
 - a. every six months, if employee's previous exposure was at or above the action level;
 - b. annually, if employee's previous exposure was at or above the STEL.
6. It is prohibited to rotate employees for the purpose of limiting the exposure.
7. Monitoring shall be terminated if results from two consecutive sampling periods taken at least 7 days apart show that employee exposure is below the action level and the STEL.

B. NOTIFICATION OF MONITORING RESULTS

1. Within 15 days of receiving monitoring results, the EH&S Office shall provide written notification to:
 - a. The Supervisor if results are below the AL/STEL (Notification Results). The Supervisor shall post results in the lab and/or inform employee(s).
 - b. The affected employee and Supervisor, if the results are at or above the AL/STEL (Exposure Notification/Medical Surveillance).

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C. REGULATED AREAS

1. When repeated monitoring results shows the concentration of airborne HCHO is above the PEL and/or STEL, the Supervisor shall establish the area as a "regulated area" and post all entrances and accesses with observable signs containing these words:

DANGER
FORMALDEHYDE
IRRITANT AND POTENTIAL CANCER HAZARD
AUTHORIZED PERSONNEL ONLY

2. Access to regulated area shall be restricted to persons who have been trained to recognize the hazards of formaldehyde and to work safely using PPE.

D. RESPIRATORY PROTECTION

1. Respirator use shall be permitted under the following circumstances:
 - a. During the interval necessary to install or implement feasible engineering and work practice controls.
 - b. In work situations where feasible engineering or work practice controls are not yet sufficient to reduce exposure below PEL/STEL.
 - c. In work situations where engineering controls and work practice controls are not feasible.
 - d. In emergencies where exposure could exceed PEL/STEL.
1. Whenever respirator use is required, the employee shall be provided with an appropriate National Institute for Occupational Safety and Health (NIOSH) approved respirator at no cost and shall use it properly.
2. The respirator selected shall reduce air-borne concentration of formaldehyde inhaled by the employee to at or below TWA or STEL.
3. The EH&S Office maintains a written respiratory protection program in accordance with the OSHA respiratory protection standard and provides training and fit-testing.
4. Employee must obtain medical clearance from the OHS or a health provider for fit-testing and respirator use.
5. A powered air-purifying respirator shall be made available to any employee who experiences difficulty wearing a negative pressure respirator.

E. PROTECTIVE EQUIPMENT AND CLOTHING

1. Personal protective equipment (PPE) such as lab coats, gloves, goggles, face shields appropriate for use with formaldehyde shall be provided at no cost to the employees. The Supervisor shall ensure that employees:
 - Use appropriate PPE when working with formaldehyde.
 - Avoid contact of the eyes and skin with liquids containing one (1%) percent or greater formaldehyde by the use of chemical protective clothing made of material impervious to formaldehyde.
 - Use non-latex gloves, such as nitrile or butyl when handling HCHO.
 - Do not reuse PPE and clothing that has become contaminated with formaldehyde before it is cleaned or laundered.
 - Store contaminated equipment and clothing in containers labeled as:

DANGER
FORMALDEHYDE -CONTAMINATED (CLOTHING) EQUIPMENT
AVOID INHALATION AND SKIN CONTACT

- Do not take home equipment or clothing contaminated with formaldehyde
- Are trained properly before handling or removing formaldehyde.
- Are provided a room to change contaminated clothing, if needed.
- Have access to working eyewash and emergency showers and are trained to use them in case of emergency.
- Any person, who launders, cleans, or repairs HCHO contaminated clothing or equipment shall be informed of formaldehyde's potentially harmful effects and procedures to safely handle such material.

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F. HOUSEKEEPING

1. The workplace shall be maintained clean and free from formaldehyde contaminated debris.
2. Formaldehyde contaminated debris and waste resulting from spills or other activities shall

3. be placed for disposal in sealed container bearing label warning formaldehyde's presence and its hazards.
4. Employees involved in clean up or maintenance should be informed about the hazards associated with formaldehyde exposure during such activities.

G. EMERGENCY

1. The Supervisor shall establish appropriate procedures and communicate to their employees, how to handle emergencies minimizing injury and loss of life.
2. Spill kits specifically designed for HCHO must be maintained in the laboratory at all times.
3. Employees shall be made familiar with the spill kit, its location and proper use. (For major spills call the EH&S Office).
4. Employees exposed to HCHO in an emergency where exposure could exceed the STEL, shall be referred to OHS and /or another health provider for medical evaluation.

H. MEDICAL SURVEILLANCE PROGRAM and EXAMINATIONS

1. Columbia University maintains formaldehyde medical surveillance program consistent with the OSHA Standard. For example, surveillance is required when:
 - a. Employees are exposed to concentrations at or above the action level (AL) and/or STEL.
 - b. Employees develop signs and symptoms of potential exposure.
 - c. Employees are exposed to formaldehyde during emergencies.
2. Employees covered under the medical surveillance program shall be required to complete a medical disease questionnaire.
3. Annual medical examinations shall be given to employees required to wear a respirator to reduce formaldehyde exposure.
4. When an employee is removed/transferred or restricted to work due to significant symptoms or medical condition from exposure, the supervisor shall assure that the exposure to HCHO at the new location is not at/or above the action level (AL) and/or STEL. Transfers will be consistent with Human Resource Policy and the OSHA Standard.
5. Any employee not working as a result of a medical condition due to formaldehyde exposure must arrange for a follow-up medical examination to take place within six months after removal, to determine if they can return to the original job status, or if the removal is to be permanent.
6. An employee has the right to seek a second medical opinion if the examining physician determining medical removal or restrictions.
7. Employees exposed in an emergency shall be medically evaluated as soon as possible. If there is a life threatening condition as a result of exposure, they are to seek immediate attention in Emergency Services located On168th Street at Medical Center or Roosevelt Hospital at MS campus with follow-up the next business day in OHS or a health provider. An Incident Form should accompany employee.

I. HAZARD COMMUNICATION

1. All provisions of this program shall be enforced in all laboratories where formaldehyde is used.
2. Hazard warning labels that identify if the product contains formaldehyde shall be placed on the containers.
3. Labels shall inform users of "Potential Cancer Hazard".
4. MSDS shall be made accessible to employees. It should be reviewed and updated, periodically

J. INFORMATION AND TRAINING

1. Employees assigned to a workplace where formaldehyde is used must participate in training. Employees exposed to HCHO below 0.1 ppm may not require training.
2. Employees must be trained when introduced into such a work environment and annually thereafter.
3. Training shall be conducted by EH&S Office and include:
 - a. Discussion of the regulation, Material Safety Data Sheets and labels.
 - b. The purpose for and a description of the medical surveillance program as it pertains to signs and symptoms of exposure.
 - c. Discussion of health hazards, such as cancer, irritation and sensitization of the skin and respiratory system, eye and throat irritation, and acute toxicity.
 - d. Instructions to report to the Supervisor the development of any adverse signs or symptoms that are suspected to be attributable to HCHO exposure.
 - e. Description of operations in the work area where formaldehyde is present and an explanation of the safe work practices appropriate for limiting exposure.
 - f. The purpose for, proper use of, and limitations of personal protection, equipment.
 - g. Instructions for handling of spills, emergencies and clean up procedures.
 - h. The importance of engineering and safe work practices in reducing HCHO exposure.
 - i. Instructions for the handling of spills, emergencies and clean-up procedure and role of employee in case of contamination.

4. Training material is available from the EH&S Office upon request and without cost to employees.

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K. RECORDKEEPING

1. Exposure Measurements:

- a. The EH&S Office maintains formaldehyde exposure monitoring records.
- b. Records shall include:
 - Date of measurement.
 - Operation being monitored.
 - Method of sampling and analysis
 - Number, duration, time and results of samples taken.
 - Type of protective device worn.
 - Names, job title, social security numbers and exposure estimates.

- c. Medical Surveillance:

2. The CPMC Occupational Health Services or other providers will maintain medical surveillance records.

3. Respirator Fit-Testing:

- a. EH&S maintains records for respirator training and fit testing.
- b. The record shall include:
 - A copy of Medical Clearance certificate.
 - A copy of the Respirator Fit-Testing performed.
 - The date of the most recent fit testing.
 - Manufacturer, model, size & type of respirator selected by the employee.
 - The name, job title and Social Security number of employee.

4. Retention of Records:

- a. The records shall be retained for at least the following periods:
 - Exposure records and determinations shall be kept for at least 30 years.
 - Medical records shall be kept for the duration of employment plus 30 years
 - Respirator fit testing records shall be kept until replaced by a more recent record.

5. Availability of Records:

Upon written request, exposure monitoring or medical records shall be made available for examination and or copying to the subject employee or former employee or their representative.

L. REVIEW AND UPDATE:

The policy shall be reviewed periodically and updated as necessary.

M. DEFINITIONS:

1. Action Level (AL). Means a concentration of 0.5 parts formaldehyde per million parts of air (0.5 ppm) calculated as an eight (8)-hour time-weighted average (TWA) concentration.
2. Authorized person. Means any person required by work duties to be present in regulated areas, or authorized to do so by the employer.
3. Emergency. Is any occurrence, such as but not limited to equipment failure, rupture of containers, or failure of control equipment that result in an uncontrolled release of a significant amount of formaldehyde.
4. Formaldehyde. The chemical substance, HCHO, Chemical Abstracts Service Registry No. 50-00-0
5. Permissible Exposure Limits (PEL). The time-weighted-average concentration for a conventional 8-hour workday (0.75 ppm) and a 40-hour workweek to which nearly all employees may be repeatedly exposed, day after day, without adverse effect.
6. Short Term Exposure Limits (STEL). A 15-minute TWA exposure (2.0 ppm), which should not be exceeded at any time during a workday even if, the 8-hour exposure is within the OSHA-PEL as TWA.

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