



<b>Subject:</b> Formaldehyde Exposure Control Policy	<b>Date:</b> 02/09/2021
<b>EH&amp;S Program:</b> Laboratory Safety	<b>Next Review:</b> 2023
<b>Scope:</b> University wide	<b>Original:</b> 10/94

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**Policy:**

Employees who use or may be exposed to formaldehyde, its solutions, or materials that produce formaldehyde must be protected from exposure that would otherwise exceed the limits set forth in this policy.

**Definitions:**

**Action Level (AL)** - a concentration designated in 29 CFR part 1910 for a specific substance, calculated as an eight (8)-hour time-weighted average, which initiates certain required activities such as exposure monitoring and medical surveillance. The action level for formaldehyde is 0.5 parts formaldehyde per million (0.5 ppm).

**Administrative controls** - changes in work procedures such as written safety policies, rules, supervision, schedules, and training with the goal of reducing the duration, frequency, and severity of exposure to hazardous chemicals or situations.

**Engineering controls** – a physical modification to a process, or process equipment, or the installation of further equipment with the goal of preventing the release of contaminants into the workplace.

**Formaldehyde (HCHO)** – is a colorless, highly toxic and flammable gas at room temperature with a strong pungent odor (Chemical Abstract Service Registry No. 50-00-0).

**Formalin** - a saturated aqueous solution generally containing 37 % by weight of formaldehyde.

**Paraformaldehyde** – polymerized formaldehyde.

**Permissible Exposure Limit (PEL)** – a legal limit in the United States for exposure of an employee to a chemical substance or physical agent. This is given as a maximum concentration during a time-weighted average (“TWA”) of 8 hours (assuming a 40 hour work week). For formaldehyde, the PEL is 0.75 parts formaldehyde per million (ppm).

**Short Term Exposure Limit (STEL)** - the legal maximum average exposure for a 15-minute time period. For formaldehyde the limit is 2 parts formaldehyde per million (2 ppm).

**PPM: parts per million**

**Procedures:**

**A. Responsibilities**

**1. Principal Investigators/Supervisors/Lab Directors/Facility Manager (“Supervisor”) must :**

- a. Consider the feasibility of using formaldehyde substitutes wherever possible.
- b. Ensure that all laboratory members have completed ELS 009 and can demonstrate an awareness of the signs and symptoms of exposure.
- c. Provide training to laboratory personnel on the storage, handling, and use of formaldehyde within the lab.
- d. Develop and implement administrative controls (SOPs, volume limits etc.) to limit employee exposure.
- e. Require the use of engineering controls (chemical fume hoods, snorkels/elephant trunk exhaust, downdraft tables), and PPE to minimize formaldehyde exposure where appropriate.
- f. Identify all employees who may be exposed at or above the action level or at or above the STEL and coordinate with Environmental Health and Safety (EH&S) to perform initial monitoring.
- g. Coordinate with EH&S to facilitate ongoing exposure monitoring when indicated.

**2. Laboratory Staff/ Employees/ Students**

- a. Complete ELS 009 Lab Safety – Formaldehyde course. This training is required annually. It is available on Blackboard. This training is required in addition to other training based on the Laboratory’s Registration.
- b. Demonstrate an awareness of the signs and symptoms of formaldehyde exposure.

- c. Complete laboratory-specific training on the storage, handling, and use of formaldehyde within the laboratory.

### **3. Environmental Health and Safety**

- a. Develop and maintain this policy.
- b. Develop and maintain *ELS 009 - Formaldehyde Laboratory Safety Training*.
- c. Provide guidance and support to areas which use, store, and dispose of formaldehyde and formaldehyde waste.
- d. Help develop and implement methods for monitoring for formaldehyde exposure when and where indicated.
- e. Coordinate with Supervisors and Department Leadership to review monitoring results and ensure employees are notified within the required timeframe.

## **B. Controlling Exposure**

### **1. Administrative Controls**

- a. Conduct a hazard assessment for formaldehyde use.
- b. Develop standard operating procedures to prevent or minimize employee exposure. Examples can include:
  - limiting the volume of material to be used,
  - limiting the amount of time working with formaldehyde, and
  - keeping all formaldehyde work restricted to a designated area
- c. Ensure Safety Data Sheets are easily accessible to employees.

### **2. Engineering controls**

- a. Mandate the use of engineering controls to reduce and maintain employee exposures to formaldehyde at or below the action level. Local exhaust ventilation such as a chemical fume hood, snorkel or downdraft table should be used whenever possible.
- b. Bio-safety cabinets or Laminar flow hoods are not appropriate for use of formaldehyde.

### **3. Storage**

- a. Keep all containers closed except when in use.
- b. Store in chemically compatible containers which are labelled.
- c. Store away from heat sources.
- d. Keep all containers of formaldehyde liquids in secondary containment.

### **4. Personal Protective Equipment (PPE)**

PPE must be worn according to procedure/area requirement.

- a. Gloves: Nitrile and butyl gloves are effective in limiting penetration to skin. At a minimum, nitrile gloves must be worn when handling formaldehyde solutions.
- b. Eye Protection: Safety goggles or glasses with side shields, or a face shield with protective eyewear must be worn when handling formaldehyde to minimize the risk of splashing or vapor exposure.
- c. Always wear long pants, closed toed and heeled shoes and lab coat.
- d. For a procedure that may produce splashes to the body, a rubber apron should be worn.
- e. Working in a fume hood with the sash in the lowest position possible to prevent splashes to the face and chest.

## 5. Monitoring

Monitoring will be coordinated between the Supervisor and Environmental Health and Safety where indicated.

Initial Monitoring:

- a. Shall be performed in areas where there is the potential for employees to be exposed at or above the Action Level or at or above the STEL.
- b. Shall be repeated each time there is a change in production, equipment, process, personnel or control measures which may result in new or additional exposure to formaldehyde.

Periodic Monitoring:

- a. Shall be conducted for those employees shown by the initial monitoring to be exposed at or above action level or at or above STEL.
- b. Shall be repeated at least every 6 months if the last monitoring results reveal employee exposure at or above the action level.
- c. Shall be repeated at least once a year under the worst conditions if the last monitoring results reveal employee exposure at or above the STEL.
- d. May be discontinued 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. The results must be statistically representative and consistent with the employer's knowledge of the job and work operation.
- e. No further testing is required unless there is an event as indicated in the *Initial monitoring* section and EH&S must be notified in such situations.

## 6. Notification of Monitoring Results

- a. Results are sent to the Department Leadership and the Supervisor, and they must share the results with the employee.
- b. Affected employees must be notified of their results within 15 days of receipt.

- c. If the employee exposure is above the PEL, affected employees are provided with a description of the corrective actions being taken by the employer to decrease exposure.

## 7. Emergency Equipment

- a. There must be an eyewash within the immediate work area when there is any possibility that eyes may be splashed with solutions containing 0.1 % or greater formaldehyde.
- b. Areas where formaldehyde solutions of 1 % or greater are used, a quick drench shower must be conveniently located.

## 8. Signs

- a. Storage areas for contaminated clothing and equipment must have signs bearing the following legend:

*DANGER*

*FORMALDEHYDE CONTAMINATED [CLOTHING] EQUIPMENT*

*MAY CAUSE CANCER*

*CAUSES SKIN, EYE AND RESPIRATORY IRRITATION*

*DO NOT BREATHE VAPOR*

*DO NOT GET ON SKIN*

- b. In areas where the concentration exceeds the PEL or the STEL, signs must be posted at all entrances with the following information:

*DANGER*

*FORMALDEHYDE*

*MAY CAUSE CANCER*

*CAUSES SKIN, EYE AND RESPIRATORY IRRITATION*

*DO NOT BREATHE VAPOR*

*DO NOT GET ON SKIN*

*AUTHORIZED PERSONNEL ONLY*

## 9. Emergencies

- a. Small Spills: spills that can be cleaned up by trained lab personnel without putting themselves or others in danger.
  - Isolate the area, remove all ignition sources.
  - Nitrile gloves, protective eyewear and lab coat must be worn when cleaning up the spill.
  - Clean the spill with an absorbent material.
  - Place all contaminated disposable material in a double bag or sealable container and label with a Hazardous Waste Label.
- b. Large Spills: spills that present immediate danger (exposure, fire etc.)

- Do not clean up the spill, immediately evacuate the area.
- Contact University Police at 333 (from a campus phone) or (631)632-3333 from a non-campus phone.
- Do not enter the area until it has been cleared by EH&S.
- Report accidents involving an injury, illness or exposure to formaldehyde ( via inhalation or splash or other accident) : [Accidents and Injury reports](#)
- Contact University police UPD 333 (from a campus phone) and (631)632-3333(from a non-campus phone) for emergencies such as injury or exposure to formaldehyde.

#### **10. Medical Surveillance**

- a. The employer (PI/Department) must make medical surveillance available for employees:
  - exposed to formaldehyde at or above the Action Level or exceeding the STEL,
  - who develop signs and symptom of overexposure
  - exposed in emergencies
- b. If an employee requires medical surveillance, they are to contact the Center for Occupational and Environmental Medicine, 181 N.Belle Mead Rd, Suite 2, Telephone: (631)444-6250.
- c. If the employee has developed signs and symptoms related to formaldehyde exposure in emergencies, then they should go to the SBU Hospital – Emergency Department.

#### **11. Disposal**

- a. Formaldehyde containing solutions must be disposed as hazardous chemical waste in compliance with the Hazardous Waste Management Policy.
- b. Biological specimens are considered biohazardous waste, please contact SBU EH&S at [Hazwaste@stonybrook.edu](mailto:Hazwaste@stonybrook.edu) for disposal instructions.

#### **Forms:**

1. [Respirator Certification](#)
2. [State Employee Accident Report](#)
3. [Research Foundation Work-Related Employee Injury/Illness Incident Report](#)
4. [Minors/Students Accident/Injury Report](#)
5. [Hospital Employees](#)

**Policy Cross Reference:**

1. SBU [Respiratory Protection](#)
2. SBU [Personal Protective Equipment](#)
3. SBU [Hazardous Waste Management Policy](#)

**Relevant Standards/Codes/Rules/Regulations/Statutes:**

1. 29 CFR 1910.1048 [Formaldehyde](#).

**References and Resources:**

**N/A**