

## **WAC 296-856-20050 Exposure evaluations.**

### **IMPORTANT:**

- This section applies when there is a potential for an employee to be exposed to airborne formaldehyde in your workplace.

- When you conduct an exposure evaluation in a workplace where an employee uses a respirator, the protection provided by the respirator is not considered.

- Following this section will fulfill the requirements to identify and evaluate respiratory hazards found in a separate chapter, Respiratory hazards, chapter 296-841 WAC.

(1) You must conduct an employee exposure evaluation to accurately determine airborne concentrations of formaldehyde by completing Steps 1 through 7 of the exposure evaluation process, each time any of the following apply:

(a) No evaluation has been conducted.

(b) Changes have occurred in any of the following areas that may result in new or increased employee exposures:

(i) Production.

(ii) Processes.

(iii) Exposure controls, such as ventilation systems or work practices.

(iv) Personnel.

(v) Equipment.

(c) You have any reason to suspect new or increased employee exposure may occur.

(d) You receive a report of employee developing signs and symptoms associated with formaldehyde exposure.

(2) You must provide affected employees or their designated representatives an opportunity to observe exposure monitoring required by this chapter.

(3) You must make sure observers entering areas with formaldehyde exposure:

(a) Are provided with and use the same protective clothing, respirators, and other personal protective equipment (PPE) that employees working in the area are required to use;

### **AND**

(b) Follow any safety and health requirements that apply.

### **Exposure evaluation process:**

#### **Exemption:**

- Exposure monitoring is not necessary if you have documentation conclusively demonstrating that employee exposure for a particular material and the operation where it is used, cannot exceed the action level (AL) or short-term exposure limit (STEL) during any conditions reasonably anticipated.

- Such documentation can be based on observations, data, calculations, and previous air monitoring results. Previous air monitoring results:

- Must meet the accuracy required by Step 5.

- Must be based on data that represents conditions being evaluated in your workplace.

- May be from outside sources, such as industry or labor studies.

**Step 1:** Identify all employees who have potential exposure to airborne formaldehyde in your workplace.

**Step 2:** Identify operations where employee exposures could exceed the 15-minute short-term exposure limit (STEL) for formaldehyde of 2 parts per million (ppm).

**Note:** You may use monitoring devices such as colorimetric indicator tubes or real-time monitors to screen for activities where employee exposures could exceed the STEL.

**Step 3:** Select employees from those working in the operations you identified in Step 2 who will have their 15-minute exposures monitored.

**Step 4:** Select employees from those identified in Step 1 who will have their 8-hour exposures monitored.

- Make sure the exposures of the employees selected represent 8-hour exposures for all employees identified in Step 1, including each job activity, work area, and shift.

- If you expect exposures to be **below** the action level (AL), you may limit your selection to those employees reasonably believed to have the highest exposures.
- If you find any of those employees' exposure to be **above** the AL, then you need to repeat monitoring to include each job activity, work area, and shift.

**Reference:** A written description of the procedure used for obtaining representative employee exposure monitoring results needs to be kept as part of your exposure records, as required by Exposure records, WAC 296-856-20070.

- This description can be created while completing Steps 3 through 6 of this exposure evaluation process.

**Step 5:** Determine how you will obtain accurate employee exposure monitoring results. Select and use an air monitoring method with a confidence level of 95 percent, that is accurate to:

- $\pm 25$  percent when concentrations are potentially above the TWA of 0.75 parts per million (ppm).
- $\pm 25$  percent when concentrations are potentially above the STEL of 2 ppm.
- $\pm 35$  percent when concentrations are potentially above the AL.

**Note:**

- Here are examples of air monitoring methods that meet this accuracy requirement:
  - OSHA Method 52 found at <http://www.osha.gov/dts/sltc/methods/toc.html>.
  - NIOSH methods: 2016, 2514, 3500, 2539, and 5700, found at <http://www.cdc.gov/niosh/homepage.html> and linking to the NIOSH Manual of Analytical Methods.
  - Direct reading methods found at <http://www.osha.gov/SLTC/formaldehyde/index.html>

**Step 6:** Obtain employee exposure monitoring results by collecting air samples to accurately determine the formaldehyde exposure of employees identified in Steps 3 and 4.

- Make sure samples are collected from each selected employee's breathing zone.

**Note:**

- You may use any sampling method that meets the accuracy specified in Step 5. Examples of these methods include:
  - Real-time monitors that provide immediate exposure monitoring results.
  - Equipment that collects samples that are sent to a laboratory for analysis.
- The following are examples of methods for collecting samples representative of 8-hour exposures.
  - Collect one or more continuous samples, such as a single 8-hour sample or four 2-hour samples.
  - Take a minimum of 5 brief samples, such as five 15-minute samples, during the work shift at randomly selected times.
- For work shifts longer than 8 hours, monitor the continuous 8-hour portion of the shift expected to have the highest average exposure concentration.

**Step 7:** Have the samples you collected analyzed to obtain employee exposure monitoring results for 8-hour and short-term exposure limits (STEL) exposures.

- Determine if employee exposure monitoring results are above or below the following values:
  - 8-hour action level (AL) of 0.5 ppm.
  - 8-hour time-weighted average (TWA<sub>8</sub>) of 0.75 ppm.
  - 15-minute short-term exposure limit (STEL) of 2 ppm.

**Reference:** To use the monitoring results to determine which additional chapter sections apply to employee exposure in your workplace, turn to the Scope, WAC 296-856-100, and follow Table 1 in that section.

**Note:**

- You may contact your local WISHA consultant for help with:

- Interpreting data or other information.
- Determining 8-hour employee exposure monitoring results.
- To contact a WISHA consultant:
- Go to the safety and health core rules, chapter 296-800 WAC; and
- Find the resources section, and under "other resources," find service locations for labor and industries.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and 49.17.060. WSR 18-22-116, § 296-856-20050, filed 11/6/18, effective 12/7/18; WSR 06-08-087, § 296-856-20050, filed 4/4/06, effective 9/1/06.]