



## General

- OSU Chemical Safety Committee has classified formaldehyde a "high hazard" carcinogen
- OR-OSHA has a specific regulation covering formaldehyde use by employees
- Use of formaldehyde must be registered and controlled
- Formaldehyde, often purchased as formalin, is potentially carcinogenic, but it can be used with little risk to health if used properly

## Use Registration

- Each individual in charge of an activity using formaldehyde must register the use with EH&S on a [High Hazard Carcinogen Registration form](#)

## Monitoring

- Whenever an operation uses formaldehyde outside of an approved laboratory fume hood, the user should contact EH&S to perform required air monitoring to determine if a health hazard from formaldehyde exists
- The **Permissible Exposure Limit** (PEL) for formaldehyde is:
  - 0.75 ppm (part per million) in air averaged over an 8-hour work day (TWA); or
  - 2 PPM for a 15 minute period (short term exposure limit, STEL)
- The action level is 0.5 PPM (TWA)
- Additional precautions must be taken if formaldehyde levels exceed any of these exposure levels
- Users may monitor their own formaldehyde exposure after consulting with EH&S
- Results of formaldehyde monitoring must be documented and must include
  - dates, number, and results of testing
  - methods used in testing and taking air samples
  - description of any type of respirators worn
  - the names and social security numbers of the people exposed
- This monitoring documentation must be kept on file for at least 30 years
- Departments using the formaldehyde must show the written results of all formaldehyde testing to all affected workers.
- Notification must be made within 15 working days after receiving the results
- Notification must include what actions are being taken to bring the formaldehyde level down if the PEL has been exceeded
- Everyone who works with formaldehyde has the right to observe the testing procedures

## Training

- Before workers use formaldehyde, they must be given information and training about how to safely use the chemical
- [Annual training](#) is required where formaldehyde is used and airborne levels are >0.1 ppm.
- Additional information about formaldehyde use is available from many sources

## Health Hazards of Formaldehyde

- Formaldehyde is
  - potentially carcinogenic
  - harmful if it is inhaled, swallowed, or contacts the skin or eyes
- The hazard from exposure to formaldehyde depends on the concentration and physical state:

**Contact EHS:**  
safety@oregonstate.edu  
oregonstate.edu/ehs/  
541 • 737 • 2273

- a solution with a concentration of 37% is much more hazardous to skin or eyes than a solution with 1%
- Formaldehyde initially causes irritation, itching, and burning to exposed parts of the body
- Odor of formaldehyde can be detected at 0.8 to 1.0 PPM
- With time a tolerance is developed irritation and odor of formaldehyde, but not to the harm done
- Prolonged or repeated exposure may result in respiratory problems
- Irritation and sensitization of the skin and respiratory system can also occur.

## **Protective Clothing & Equipment**

### **Respirators**

- Required where laboratory fume hoods or other local exhaust systems cannot be used and the formaldehyde air concentration exceeds the PEL.
- Must be approved for the use with formaldehyde and properly fitted.
- Respirator cartridges or canisters must be replaced after three hours of use.
- [Respirator use and the Respiratory Protection Program](#)

### **Eye and skin protection**

- Safety glasses, goggles, face shields, boots, gloves, sleeves, aprons, etc. are necessary if using liquids with 1% formaldehyde concentration or higher
- An eyewash immediately available to employees is required in areas in which 0.1% or greater concentration of formaldehyde is used
- Protective clothing and equipment that has been contaminated with formaldehyde must be cleaned or laundered before it is used again.

## **Emergency & First Aid Procedures**

### **Ingestion**

- If formaldehyde is swallowed, give a conscious victim milk, activated charcoal, or water to drink
- The victim should be kept warm and resting. Medical attention must be called for immediately
- If vomiting occurs, the head of the victim should be kept lower than the hips

### **Inhalation**

- If large amounts of formaldehyde are inhaled the affected person should be immediately taken to fresh air.
- Medical assistance must be called for immediately.
- If breathing stops, give artificial respiration.
- The victim should be kept warm and resting.
- If exposure causes coughing to continue for more than ten minutes or severe irritation of nose, mouth, and throat occurs, the exposed person should see a doctor.

### **Skin contact**

- If skin contact with formaldehyde occurs, remove contaminated clothing and wash skin with soap and water for 15 to 20 minutes.
- If chemical burns develop, cover the area with sterile, dry dressings and immediately get further medical attention.
- Contaminated clothing should be washed before they are worn again.

### **Eye splash**

- If formaldehyde splashes into the eyes, they should be flushed with large amounts of water for 15 to 20 minutes.
- If burns develop, apply sterile bandages loosely and get medical attention immediately.
- If continuous irritation occurs from excessive exposure to fumes, promptly check with an ophthalmologist.

## Precautions For Safe Use, Handling & Storage

- Formaldehyde is a moderate fire and explosion hazard and should be kept away from sparks and flames
- Formaldehyde is incompatible with nitrogen dioxide, nitromethane, perchloric acid, aniline, and peroxyformic acid.
- In general, formaldehyde should not be mixed with strong oxidizing agents, caustics, strong alkalies, isocyanates, anhydrides, oxides, or inorganic acids

## Signs and Labels

- **Warning signs** must be posted at entrances to areas where exposure to formaldehyde might reasonably be expected to exceed the PEL (TWA or STEL). Signs should contain the following wording:

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

- **Containers** of materials containing more than 0.1 percent formaldehyde should be labeled with:

**DANGER  
FORMALDEHYDE  
IRRITANT AND POTENTIAL CANCER HAZARD**

## Spill & Leak Procedures

- Contact EH&S for assistance in dealing with all formaldehyde spills of more than one liter.
- Small spills should be immediately cleaned up using an appropriate absorbent.
- Waste material should be disposed of through the Hazardous Waste Disposal program.
- Formaldehyde must not be poured into the sewer system.

## Medical Surveillance

- A medical surveillance program must be established for those people who work regularly with formaldehyde above the action level or PEL.
- Contact EH&S for specific medical surveillance program procedures.

## Additional Information

- Contact EH&S for more information regarding safe handling procedures or copies of the state safety regulations on formaldehyde.