

## Formaldehyde Spill Protocol for Laboratory Personnel

The Occupational Safety and Health Administration (OSHA) requires employers to have a written program for the safe use of formaldehyde containing materials. The University of Rochester's written Formaldehyde Program was written to comply with this standard and provide the necessary actions to protect laboratory personnel. A copy of the written program is available at the University's Environmental Health and Safety's web site.

Formaldehyde solutions can be found in a number of University laboratories. The concentration of these solutions is typically 3.7% formaldehyde (commonly called 10% formalin). However, some laboratories purchase 35-37% formaldehyde solutions. The higher concentration presents a challenge in minimizing exposures when handling and cleaning up spills. Paraformaldehyde and formalin are to be handled in the same manner as formaldehyde.

This document deals with the cleanup of minor spills of formaldehyde containing materials. Major spills need to be handled as stated in the University of Rochester's EMERGENCY 13 flip chart and called into Public Safety (x13) for an EH&S Spill Team response.

### Possible Health Hazards/Precautions

The most likely exposures for lab personnel during a spill are from inhalation and from direct skin or eye exposures. Because minor spills can be cleaned up quickly, inhalation exposures must not exceed the OSHA Short Term Exposure Limit of 2.0 parts per million for 15 minutes.

To minimize exposures, appropriate PPE must be worn at all times when handling any formaldehyde solution, including cleaning up minor spills. The PPE would include a lab coat, disposable gloves, and safety glasses or goggles. Personnel can elect to wear additional PPE, such as double gloves.

### Minor Spill Protocol

Minor spills are those that can be cleaned up very quickly by laboratory personnel who have received training on the hazards of formaldehyde. The quantity, concentration, the location of the spill, and the availability of staff to assist in the cleanup may elevate some formaldehyde spills to the status of a major spill. The table below illustrates some spill scenarios:

Minor Spills	Major Spills
A single leaking specimen container containing 10% formalin or paraformaldehyde	Multiple broken specimen containers that contained 10% formalin (perhaps from a collapse of a shelf).
A broken specimen container that contained up to 100 ml of 10% formalin or paraformaldehyde	A partial or full container containing more than 100 ml of 35% formaldehyde onto a bench or the floor
A partial or full container (greater than 100 ml) of 35% formaldehyde in a chemical fume hood	A stock bottle (500 ml or greater) of 10% formalin onto a bench or the floor
A splash of concentrated formaldehyde or paraformaldehyde onto a surface	A single lab staff member who becomes injured and drops 1-2 specimen containers

Immediate action must be taken to prevent an over-exposure to formaldehyde should a container fail or leak. The following are actions to take for certain **MINOR SPILL** situations that may

occur. **For any spill response, always wear the required PPE.** If you are uncertain about a certain spill or situation, leave the immediate area and call Public Safety (x13) and request the University's EH&S Spill Team.

For small/minor formaldehyde spills, clean surfaces with cold water at least two times. If paper towels are used, place the used towels into a plastic bag and seal the bag. Use CHEMATIX to complete a waste tag so the material is disposed of as **hazardous waste**.

Some suggested clean up procedures to use that will minimize potential exposures to formaldehyde are listed below.

1. **A SINGLE leaking, unused (new) sample container (less than 100 ml):** Place a paper towel under the leaking container (to prevent dripping the aldehyde onto the floor and other surfaces) and take the specimen container to a sink. Pour the aldehyde solution from the leaking container into a hazardous waste container. Clean any contaminated surface with cold water at least two times. Take all paper towels contaminated with the aldehyde and place into a sealable bag for disposal as hazardous waste.
2. **Leaking specimen container holding a specimen:** Transfer the specimen into another specimen container. Pour the aldehyde solution from the leaking container into a waste container for disposal as hazardous waste. Clean any aldehyde contaminated surface as listed in #1 above.
3. **A splash of concentrated formaldehyde or paraformaldehyde:** Wipe up the splash with paper towels and place the paper towels into a fume hood to minimize inhalation exposures. Clean any contaminated surface with cold water at least two times. Place the aldehyde contaminated paper towels into a sealable bag for disposal as hazardous waste.
4. **Making formaldehyde containing solutions:** Potential over-exposures can occur when preparing paraformaldehyde and 35% formaldehyde solutions. Such solutions need to be prepared in chemical fume hood to prevent exposures and to contain spills. If a spill occurs within the fume hood, the spill can be considered minor and can be cleaned up using paper towels. Clean any contaminated surface with cold water at least two times. Place the aldehyde contaminated paper towels into a sealable bag for disposal as hazardous waste.

If an bottle (greater than 100 ml) of 35% formaldehyde or paraformaldehyde were to break on a counter or the floor, or multiple sample containers break and the formaldehyde is observed to be scattered onto or around multiple other items resulting in an extended cleanup, evacuate the location and follow the information outlined in the University of Rochester Medical Center's EMERGENCY 13 flip chart, section listed Chemical/Biological/Radiological Spill.

If you have any questions or concerns about the storage or use of formaldehyde or any other chemical in your work area, please contact the EH&S's Laboratory Safety Unit at x5-3241.