



Guidance Note

May 2007

Aldehyde Spills

HWG-024

This information is for your use and as a way of providing consistent information. There is no response required.

FORMALDEHYDE / GLUTARALDEHYDE SPILL PROCEDURE

For formaldehyde or glutaraldehyde spills the UCDHSC emergency coordinator should be aware of the following guidelines:

1. Restrict access into the spill area. Consider the potential for chemical exposures and for large spills of five gallons or more decide whether fire department should be called.
2. Proper PPE must be worn by the clean up personnel. Use the MSDS or chemical manufacturer's information as a guide. If a half-face respirator is selected choose chemical cartridges made specifically for formalin vapors.
3. Use Spill XFP for most formalin or glutaraldehyde spills (see procedures below). For large scale liquid spills use charcoal or diatomaceous earth (Ultrasorb 248) as the absorbent. Clean up the spill debris with a plastic shovel or dustpan. Collect the spill debris in a tightly sealed waste container.
4. Make sure that the spill site is properly decontaminated after removing the spill debris. Wash the spill site thoroughly with soap and water.
5. The room should be cleared with a detector tube before people are allowed to occupy the space. If you do not have a detector tube to clear the room, allow the room plenty of time to properly air out, or use a portable fan.
6. Properly label the waste container with a hazardous waste label including the date of accumulation. Leave a note on the waste container indicating the circumstances of the spill and notify the hazardous waste manager for final disposal.

Small spills and/or low concentrations (<1000 ml / < 20%)

Small spills may be absorbed with Spill XFP (green crystals) which will cause polymerization (solidification) of the aldehyde. Spill XFP consists of approximately 65 % urea, 25 % calcium chloride, and 10 % citric acid. The less concentrated the aldehyde solution, the longer period of time the polymerization reaction will take (up to 20 minutes). Solidification may not occur with an aldehyde concentration of 2 % or less.

Large spills and/or high concentrations (> 1000 ml / > 20%)

Using Spill XFP on concentrated aldehyde solutions may form molten plastic residues on the floor that may be difficult to remove. Additionally, the polymerization reaction is very exothermic for high concentration solutions. For spills involving liter quantities of concentrated glutaraldehyde (25%) or formaldehyde (37%) the use of charcoal or diatomaceous earth (Ultrasorb 248) may be more appropriate than using Spill XFP.

For either large or small spills, scrape up the polymerized or absorbed material and place it into a sealed plastic bucket for transport to the fume hood in the hazardous waste storage area.

In the hospital, glutaraldehyde is often found as a 2% disinfectant solution (Cidex). Formaldehyde is used as a preservative for tissue/organ samples. Both are water soluble, however they can give off extremely irritating vapors during clean-up. Spill XFP may be used to solidify formalin or Cidex solutions.

Even small formaldehyde or glutaraldehyde spills usually require the use of a chemical respirator in order to clean up the spill. For minor formaldehyde spills, select a chemical cartridge designed specifically for formaldehyde for your half-face respirator. Minor spills of glutaraldehyde are effectively filtered with an organic vapor cartridge (low concentrations). If any doubt exists as to concentration of the aldehyde, use a self-contained breathing apparatus when cleaning up the spill in order to prevent burning of the eyes or respiratory exposures.

Formaldehyde is a suspected carcinogen and it is toxic by skin contact and inhalation. Exposure to formaldehyde vapors may cause the person to become sensitized. Formaldehyde vapors are irritating therefore in many spill cleanups a SCBA will have to be worn. The PEL of formaldehyde is 0.75 ppm and the STEL is 2.0 ppm.

Glutaraldehyde is very toxic and is also a chemical that may cause exposed personnel to become sensitized. Glutaraldehyde vapors are very irritating to the eyes therefore in many spill cleanups a SCBA will have to be worn. The NIOSH ceiling for glutaraldehyde is 0.2 ppm.

For either formalin or glutaraldehyde spills the room should be cleared with a detector tube prior to allowing personnel to occupy the space. If you do not have a detector tube to clear the room, allow the room plenty of time to properly air out, or use a portable fan.