# Working safely with chemicals

By Daniel E. Gleghorn


**Before you begin**
Examples are an excellent way to help inform trainees of how working safely with chemicals might affect them. Collect information about actual injury or illness incidents or near misses in your facility.
You also can include examples of situations in the attendees' home environment.

Often employees are injured, become ill or die by chemicals not recognized as hazardous or dangerous. A chemical also may cause injury, illness or death because the employee believes someone would never handle or breathe it.

It is important to emphasize to trainees the first step in working safely with chemicals is to determine what exposure they might have, determine if someone has measured the exposure, and review the material safety data sheet (MSDS) to determine the hazards of and safeguards for working with the chemical.

State the purpose of this training session: to familiarize everyone with the importance of working safely with chemicals and how to recognize hazards of chemical exposure.

Ask those in attendance to name instances where they or someone they know were injured or became ill from improperly handling chemicals at work or at home. If there is a whiteboard or flip chart available, write their responses down.

If the group is having trouble identifying instances, you may want to help them out with the examples found in the table on the next page. Review the instances and, if possible, show pictures of specific situations.

The hazards associated with handling chemicals are not always recognized. Often, it is easier to be unsafe than to be safe. Sometimes we rationalize the job will take so little time, or we have always done it this way, so choose to ignore the risks. Health hazards of chemicals include:

- Lung damage;
- Skin damage;
- Organ or blood damage.

Physical hazards of chemicals include:

- Fires;
- Explosions.

Ask the group who, in your facility, might be exposed to chemical hazards or dangers. The answer is anyone, especially employees who might work with chemicals in their jobs, such as maintenance workers, painters, chemists or lab workers, production workers, visitors to the facility or employees working at home.

| Type of chemical | Type of operation or job | Type of injury or illness |
|---|---|---|
| Acid or caustic | Mixing a solution for a process | Chemical burn |
| Formaldehyde/silica | Making foundry molds | Lung disease |
| Organic paint thinner | Mixing paint | Dry skin/dermatitis |
| Organic paint thinner | Spray painting | Lung disease |
| Degreaser fluid | Cleaning parts | De-fat skin and organ damage |
| Sodium hypochlorite (Clorox) | Bleaching/cleaning | Skin damage |

**Understanding the principles of working safely with chemicals**

Ask the group what the three major types of health hazards are. The answers are:

- Lung damage;
- Skin damage;
- Organ and blood damage.

Ask the group if the person working with a chemical is the only person exposed to hazards of the chemical. The correct answer is that an associate or someone walking by may also be exposed to more, but less obvious, hazards or danger.

The person working with the chemical can be protected by proper process controls or personal protective equipment (PPE); but a person who happens by later may be exposed to a reaction of the chemical process.

It is important to note that PPE does not make a process safe, but provides a barrier between the person working with the chemical and the hazard of the chemical.

**Action steps**

1. Review the workplace to determine the chemicals used.
2. Review MSDSs for the chemicals used to determine the hazards and protections required.
3. Review exposure monitoring to determine if engineering controls are necessary or feasible, and if PPE is required.
4. Follow your organization's policies and procedures for working safely with chemicals.
5. Have trainees review potential chemical hazards outside the workplace to provide protection to their families and themselves.

**Daniel S. Gleghorn**, a certified safety professional, has 35 years of experience in occupational safety and health. He is executive vice-president of American Safety & Health Management Consultants Inc.; and previously managed industrial health and safety issues for various subsidiaries of the Goodyear Tire & Rubber Co. Gleghorn was named All-Ohio Safety Professional of the Year for 1990.

**We always strive to improve the *Safety Leader's Discussion Guide*. Your feedback can help. Please send your comments via e-mail to Safety@ohiobwc.com.**

## References

**Web sites**

- Haz-Map (National Library of Medicine): http://hazmap.nlm.nih.gov
- Hazard Communication: Foundation of Workplace Chemical Safety Programs (Occupational Safety and Health Administration): www.osha.gov/dsg/hazcom/index.html
- Where to Find Material Safety Data Sheets on the Internet (Interactive Learning Paradigms Incorporated): www.ilpi.com/msds

**Videos**

BWC's Division of Safety & Hygiene's video library has a number of videos on chemical safety and hazard communication. These are available for loan to Ohio employers. Order a catalog by calling **1-800-OHIOBWC** (ask for the video library), or visit our Web site, **ohiobwc.com**.