

## Identifying Chemical Hazards and Preventing Injuries

Everything around us is made of chemical elements – for example, water is H<sub>2</sub>O and salt is sodium chloride, NaCl. However, some chemicals are hazardous and therefore present a health hazard if handled improperly.

### HAZARDOUS CHEMICALS

Hazardous Chemicals can cause damage to the lungs, skin, eyes or mucous membranes. Hazardous chemicals include:

- Carcinogens
- Toxic agents
- Harmful Irritants
- Corrosives
- Sensitizers

Two types of health effects or reactions can occur when an individual is exposed to hazardous chemicals:

1. **Chronic reactions** – happen over time after repeated contact with the hazardous chemical
2. **Acute reactions** – happen at the time of contact

### CHEMICAL INJURIES

The most common injuries from hazardous chemicals are burns to the skin and eyes. The damage typically occurs quickly, at the time of exposure, but can develop over time. Symptoms include itching, skin irritation, pain or numbness, blisters, and/or bleached, reddened or darkened skin. Severe burns may also cause shock, and the victim may turn pale, have shallow breathing or



even faint. Immediate treatment is essential because the longer the chemical stays on the skin, the deeper and more serious the burn can be. Chemicals can penetrate the eye membrane in less than 10 seconds, and the skin in 15 seconds or less. You can't always tell how severe the burn is by how it looks. Contact your supervisor immediately and follow the emergency procedures on the Safety Data Sheet.

Chemical health hazards can also come from inhaling a gas, mist, or dry particles suspended in the air. This could be gases from gas cylinders, vapors from gasoline or bleach, fumes from metal welding operations or a powdered chemical that become airborne.



These hazards can also be either acute, severe, short-term and dangerous or chronic, present over a long period of time.

## SAFETY STRATEGIES

Hazardous chemicals can be managed safely with the use of these strategies:

- Follow all the established procedures. They are in place to protect you and your co-workers.
- Make sure all current and new employees are aware of the location of the Safety Data Sheets (SDS). Read the labels and SDS for the chemicals you are handling to ensure you understand how to handle the chemical and what to do in case of an emergency.
- Properly handle and store all chemicals according to the SDS. Never transfer chemicals into a different container unless it's necessary. If it is, ensure the new container has the proper label.
- Always use the proper personal protective equipment for the chemicals you are using such as: goggles, gloves, aprons and hazard suits.
- If you are not sure you are wearing your PPE properly, ask your supervisor to check. And if you see a

co-worker without PPE who should be using it, stop what you are doing and make sure they put on the PPE.

- Use chemicals only for their intended purpose. For example, don't ever use solvents to clean your hands or clothing.
- Follow proper housekeeping procedures. After using, put chemicals back into storage in their designated place, and ensure the containers are clean and sealed properly so the next employee to use them isn't exposed to the chemical.
- Do not eat, smoke or drink where chemicals are handled, processed or stored.
- Wash hands carefully before eating, smoking, using the toilet, handling cosmetics or touching your contact lenses, even if you were wearing PPE when you were handling the chemicals.
- Do not use any chemical if the label is missing or the cap is damaged.
- Don't take any risks, if in doubt ask your supervisor.

By taking chemical use and exposure seriously, we can keep ourselves and each other safe.

### Resources:

Supervisors' Safety Development Program, modules 8 and 10, National Safety Council.

Supervisors' Safety Manual, 10th Edition, chapters 9, 11 and 15, National Safety Council.

"Understanding Chemical Hazards." Worker Occupational Safety and Health Specialist Training Supplemental Module ([https://www.osha.gov/dte/grant\\_materials/fy11/sh-22240-11/ChemicalHazards.pdf](https://www.osha.gov/dte/grant_materials/fy11/sh-22240-11/ChemicalHazards.pdf)).

Lawton, Paul. "What Workers Need to Know About Eyewashes and Safety Showers." EHS Daily Advisor, Mar. 25, 2014 (<https://ehsdailyadvisor.blr.com/2014/03/what-workers-need-to-know-about-eyewashes-and-safety-showers/>).

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