Northwestern
OFFICE OF
RISK MANAGEMENT

Spotlight on Safety | Volume 4, Issue 4
April 2020

Compressed Gas Storage, Handling, & Disposal

Safety Isn't Just Hot Air

With the wide variety of operations on Northwestern campuses, many groups, including Facilities, research, and academic shops, require the use of compressed gases, such as oxygen, nitrogen, hydrogen, and chlorine for activities such as cutting and welding, maintaining athletic pools, and conducting research.

According to the Occupational Safety and Health Administration (OSHA), compressed gases are hazardous materials, and in 2019 accounted for 1/3 of the serious OSHA violations related to handling hazardous materials. While the use of compressed gases are common, it is critical that we understand how to properly store, handle, and dispose of these because mishandling of any kind can be disastrous.

Understanding the Hazards

The hazards associated with compressed gases include both physical hazards and chemical hazards. Physical hazards are present in any type of compressed gas cylinder, regardless of contents, and include high amounts of potential energy, which can become a potential rocket if not properly handled. Chemical hazards are specific to the contents of the compressed gas cylinder and can include oxygen displacement, fires, explosions, and toxic gas exposures depending on the specific chemical contents.

Compressed Gases Are Under Pressure, But You Don't Have To Be

Compressed gas cylinders can have an internal pressure of up to 2,500 pounds per square inch (psi) – therefore, any mishandling can be hazardous. Special storage, handling, and disposal precautions are necessary in order to control the hazards associated with compressed gases – let's take a look below to learn more:

Storage

- Secure cylinders upright with a chain or strap in a cylinder cart.
- Store cylinders at least 20 feet from combustible materials in a dry, ventilated place.
- Ensure valves are completely closed and protection devices are secured.
- Keep cylinders in a location free from vehicle traffic, excessive heat, and electrical circuits.

Handling

- Use a cart or hand truck instead of dragging or rolling cylinders (see photo to the left).
- Handle cylinders with care and avoid dropping or hitting them.
- Follow proper procedures – use appropriate personal protective equipment (PPE), including safety glasses, heavy-duty gloves, and protective footwear.

Disposal

There are two general types of compressed gas cylinders:

- Returnable – owned by the gas supplier, rental fee charged to the University
- Non-returnable – some suppliers will not accept certain cylinders, such as highly toxic or reactive gas, under any circumstances, and disposal of such can be very expensive.

Report all injuries on the Risk Management website or call 847.491.5582.
Learn more: Complete Hazard Communication and Compressed Gas Safety training.

Tips for Success When Talking to Your Team

Preparation is Key: Keep the topic relevant. Work with your team to review potential compressed gas hazard exposures in your workplace and discuss how they can be avoided.

Stay Positive: Keep the focus on what can be done to create a safe workplace, instead of focusing on what has gone wrong in the past.

Share a Story, Ask for a Story: Storytelling is a powerful method to convey information. Stories from your employees make the topic even more relatable.

Safety at Home

While the variety of compressed gases at home may not be as vast as in some workplaces, that doesn't mean the hazards are not the same. The following tips are to help keep you and your loved ones safe while using compressed gases at home:

- ✓ When cylinders are ready for disposal, confirm with your municipality if these can be taken and disposed of; otherwise, confirm with your local home improvement store if empty cylinders can be disposed of there.
- ✓ If cylinders are leaking, take them outdoors away from sparks or heat and slowly empty them.
- ✓ When grilling with propane, remember not to smoke nearby and only use outdoors or in a well-ventilated space.

For Additional Information

Contact Gwen Butler, Director, Environmental Health & Safety, at 847.491.4936.

Do you or your team have a safety story you'd like to share? Contact Risk Management at gwen.butler@northwestern.edu for details.