



Compressed Gases

Any material that's under pressure can be dangerous if it's not handled properly. If the material is a compressed gas, it may be amammable, explosive, reactive, toxic or a combination of these. Because of the hazards of compressed gases, it's very important to know what you're working with, what its hazardous properties are and how to safely handle its container—the compressed-gas cylinder

Use Compressed Gases Safely

Compressed gases are hazardous because of the high pressure at which they are stored in cylinders and pressure tanks. The compressed gases can be amammable, poisonous, corrosive, or any combination of these.

How can they hurt me?

Mishandling of compressed gases has been responsible for fatalities, serious injuries, and property damage that has amounted to millions of dollars.

Flammable compressed gases:

- Explode if handled roughly or exposed to heat.
- Ignite by heat, sparks, or flames.
- Flash back if vapors travel to a source of ignition.
- Produce irritating or poisonous gas when burning.

Non-flammable compressed gases:

- Explode when in a mixture with fuels.

Health Effects of Compressed Gases

Compressed gases:

- Are harmful if inhaled.
- Have extremely irritating vapors
- Can cause cryogenic burns to skin and eyes.
- Produces irritating or poisonous gas when burning.
- Causes dizziness, unconsciousness, or suffocation.

Handling compressed gas cylinders

Compressed gas cylinders require careful handling to prevent damage. When handling cylinders:

- Move cylinders (securely fastened, in as near an upright position as possible) on special hand trucks.
- Don't drop or bang cylinders together.
- Don't roll, drag, or slide cylinders and never use cylinders as rollers or supports.
- Don't lift cylinders by their caps.
- Don't use magnets to lift cylinders.
- Cradles or platforms can be used to lift cylinders only if the cylinder was manufactured with lifting attachments.



Compressed Gas Storage

Some general guidelines in storing compressed gas cylinders include:

- Store cylinders in an upright position.
- Storing the cylinders in a safe, dry, well-ventilated place that is clean and free of combustible material.
- Avoiding areas where cylinders can be knocked down or damaged.
- Storing the cylinders in a position that ensures that the safety relief device is always in direct contact with the cylinder's vapor space.
- Store oxygen CGCs at least 20 feet from ammalables or combustibles, or separate them by a 5 foot, re-resistant barrier.

Tips for Compressed Gas Safety

Some general guidelines in storing compressed gas cylinders include:

- Before handling any compressed-gas cylinder, identify the type of gas it houses by its identification and hazard labels, not its color. Different manufacturers use different color codes.
- Check the cylinder's label for hazards, and read the safety data sheet (SDS) for instructions on protective equipment and handling.
- Look for the maximum approved pressure label and make sure a current test date is indicated. If the cylinder is missing this information, it should not be handled.
- Only trained personnel should unload compressed-gas cylinders. Inspect cylinders for damage or leaks.
- Move defective cylinders to an isolated storage area; a ruptured cylinder can become a rocket with the force to blast through a concrete wall.
- When moving cylinders, use special cylinder hand trucks, keeping the cylinder lashed to the cradle and standing as upright as possible.
- Avoid dropping, banging or rolling cylinders.
- Keep compressed-gas cylinders away from re, heat and sparks.
- When using a cylinder, open the valve slowly, with the cylinder pointed away from people.
- Make sure the hoses and connections are clean and in good condition each time you use the cylinder.
- When a cylinder is not in use, screw down the protective metal cap to the last thread.
- Label empty cylinders with "MT" and keep them separate from full ones.
- Store compressed-gas cylinders upright, secured with a chain or cable, in a safe, wellventilated, re-resistant area with a controlled temperature below 125° F (51.7° C).
- Keep cylinders out of direct sunlight and away from heat sources, combustible materials and electrical wiring.
- Group cylinders with others housing the same contents.
- Rotate stock, using older cylinders first.
- Avoid using cylinders in conned spaces.
- Keep oxygen cylinders at least 20 feet away from ammable-gas containers,
- combustible materials, oil and grease.



Compressed Gases That Need Special Handling

- Acetylene and hydrogen: Both of these gases are highly explosive and must be handled with extreme caution. Hydrogen escapes easily from threaded fittings that aren't completely tight, and such leaks can ignite spontaneously from the friction of the escaping gas. Hydrogen has no odor to warn of a leak.
- Oxygen: While not flammable itself, oxygen increases the tendency of things around it to burn or explode. Keep oxygen cylinders away from combustible or flammable materials and re hazards, including grease and oil on your clothes, hands and work area. Oxygen should not be used in place of compressed air.
- Chlorine and fluorine: These gases are highly corrosive and irritating. When mixed with acetylene and exposed to light, they may explode. Chlorine will form corrosive hydrochloric acid in water, eating into iron or steel equipment. The proper respirator and other protective equipment should be available in case of a leak.
- Ammonia: This is a highly corrosive gas. When using it, make sure you have quick access to the proper respirator and other protective equipment.

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