

Safe Use and Storage of Compressed Gas Cylinders

Compressed gas cylinders are commonly used in laboratories and shops across UAB. Because these cylinders are under high pressure and may contain hazardous gases, they must be handled, stored, and used safely at all times.

General Safety Rules

- Only trained personnel may handle compressed gas cylinders.
- Always read the cylinder label and review the Safety Data Sheet (SDS) before use.
- Never use unlabeled cylinders.
- Never rely on cylinder color to identify contents.
- Keep cylinders upright and secured with a strap, chain, or clamp at all times.
- Use cylinders only in well-ventilated areas.
- Wear appropriate PPE, including safety glasses, gloves, and closed-toe shoes.

Safe Handling Practices

- Never use leaking, damaged, or corroded cylinders.
- Always use the correct regulator for the gas.
- Keep valve protection caps in place when cylinders are not in use or during transport.
- Close cylinder valves and release regulator pressure when not in use.
- Do not drag, roll, or slide cylinders.
- Never attempt to repair a cylinder or regulator.

Storage Requirements

- Store cylinders upright and secured individually (maximum 2 cylinders per strap).
- Keep cylinders away from exits, hallways, and public areas.
- Store in cool, dry, well-ventilated locations away from heat and ignition sources.
- Separate incompatible gases such as flammables and oxidizers.
- Do not store full and empty cylinders together.
- Clearly label storage areas with the gas hazard information.

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Transporting Cylinders

When moving cylinders:

- Use an approved cylinder cart with a securing chain or strap.
- Keep the cylinder cap in place.
- Do not lift cylinders by the cap.
- Secure cylinders immediately once moved to a new location.

Freight elevators should be used whenever possible.

Specialty Gas Safety

Flammable Gases

Examples: Hydrogen, Acetylene

- Keep away from sparks, flames, and heat sources.
- Store at least 20 feet from oxidizers or separate with an approved barrier.
- Post “No Open Flames” signage where flammable gases are used or stored.

Oxidizing Gases

Examples: Oxygen, Nitrous Oxide

- Store away from flammable materials.
- Never use oil or grease on oxygen equipment.
- Regulators used for oxygen should be marked “Oxygen – Use No Oil.”

Toxic and Highly Toxic Gases

Examples: Arsine, Phosgene

- Must be used in approved ventilated enclosures or gas cabinets.
- Gas detection and alarm systems may be required.
- Standard Operating Procedures (SOPs) and emergency procedures must be in place.
- Only trained personnel may work with toxic gases.

Corrosive Gases

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Examples: Hydrogen Chloride, Ammonia

- Use only in approved fume hoods.
- Emergency eyewash and shower access must be available.
- Wear proper PPE to prevent skin and eye exposure.

Inert Gases

Examples: Nitrogen, Argon, Helium

- Can displace oxygen and create oxygen-deficient atmospheres.
- Use only in adequately ventilated areas.

Cryogenic Liquids

Examples: Liquid Nitrogen, Liquid Helium

- Can cause severe cold burns and frostbite.
- Wear insulated gloves, goggles, and face shields when handling.
- Store in well-ventilated areas to prevent oxygen depletion.

Empty Cylinders and Disposal

- Mark empty cylinders as “EMPTY” or “MT.”
- Keep valve caps installed.
- Return cylinders to the supplier whenever possible.
- Contact UAB EH&S for assistance with unknown or non-returnable cylinders.

Questions?

UAB Environmental Health & Safety (EH&S)

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