

Spotlight On Safety

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COMPRESSED GAS SAFETY

Compressed gas cylinders are significant hazards due to the high pressure of gases contained within. Misuse can seriously weaken the cylinder and make it unfit for further use or transform it into a rocket with enough force to drive it through concrete walls. Cylinders may also have materials that are inherently toxic or highly flammable.



Transportation

- To transport or move a cylinder, strap it to a handtruck in an upright position
- The cover cap should be screwed on to protect the valve until the cylinder is ready for use; never transport a cylinder with a regulator attached.
- Cylinders should never be rolled, slid, dragged, or left free-standing.
- Never drop cylinders, bang them against each other or other objects, or handle them roughly

Use

- Cylinders in use should be attached (at 1/3 and 2/3 the height of the cylinder) to a permanent building fixture such as a bench or wall with a bracket **screwed into it** to prevent it from thrusting into walls - C-clamp bench attachments and fiber/web straps are not earthquake safe
- Store cylinders in a well-ventilated area away from ignition sources
- Protect cylinders from weather extremes, dampness and direct sunlight
- Inspect cylinders and delivery equipment often for wear, corrosion, or damage
- All cylinders must be clearly labeled - don't use unlabeled cylinders or rely on color coding
- Delivery systems for toxic gases must be approved by EH&S before installation and operation
- Select a regulator suitable for use with your cylinder (never use a cylinder without a regulator or some other pressure-reducing device)
- Door placard should indicate that compressed gasses are used in the laboratory
- Never modify, adapt, force or lubricate safety devices, cylinder valve or regulator
- Don't let grease or oil touch oxygen cylinder valves, regulators, gauges or fittings (an explosion or fire can result) - cylinders must be handled with clean hands and tools
- Never force a cylinder valve - if it doesn't open with the wheel or wrench provided, return it
- When opening cylinder valve, don't hold regulator - stand with valve between you and regulator and open cylinder valves slowly, directed away from your face
- Release a compressed gas gently to avoid build-up of static charge that can ignite
- Acetylene can form explosive compounds with copper or brass - consult operating procedures
- Do **not** extinguish a flame of a highly combustible gas until the source of gas has been shut off (re-ignition can cause an explosion)
- If the material in the tank is **toxic or flammable** and you suspect a leak, get everyone out of the area and report it to EH&S at 951-827-5528 during normal business hours and 951-827-5222 after hours, weekends, and holidays

Disposal

- Mark empty cylinders "EMPTY," close their valves, and segregate them from full cylinders
- Always leave at least 25 psi minimum pressure in all "EMPTY" cylinders to prevent contamination and the formation of explosive mixtures
- Return damaged/ corroded cylinders to the vendor, and those with a test date **more than 5 years** old stamped on the shoulder.

More information on compressed gases can be found on the EHS website: <https://ehs.ucr.edu/laboratory/chemical/compressedgas>

Visit www.ehs.ucr.edu for additional information or call EH&S at 951-827-5528 if you have any questions.