

Compressed gas cylinders pose both a physical and chemical hazard to lab and shop workers. Physical hazards range from uncontrolled release of high pressure to an explosion. Chemical hazards include asphyxiants, flammables, highly toxic gases, or reactive gases.

Without proper restraints and protective caps, compressed gas cylinders have the potential to seriously injure employees and/or destroy property. This is especially true during a seismic event. The unprotected valve stem may fall against a hard edge causing it to shear off. The resultant high pressure release would propel the cylinder at high velocity in any direction causing additional damage and/or injury.



COMPRESSED GAS CYLINDER STORAGE

- Store cylinders in a designated location (dry, cool, well-ventilated, away from combustible materials and protected from weather).
- Separate full cylinders from empty cylinders. Ensure that each is labeled with a "Full" or "Empty" tag.
- Store cylinders in an upright position and secure using two (2) non-combustible restraints (1/3 of the way from top and bottom). Chain – at least ¼" zinc-coated grade 30 steel; cable – at least ¼" zinc-coated steel.
- Chain or cable must be securely attached to immobile structures (e.g., wall, gas cylinder rack. NOTE: Gas rack must be anchored to wall or bolted to the floor for seismic safety) via appropriate hardware (e.g., eye bolts (or hooks)/ unistrut, quick release clamps). Contact Facilities Management Services (FMS) for information on compressed gas cylinder rack installations.



Cal/OSHA regulation T8 1740(g) requires that oxygen (or oxidizer) gas cylinders be separated from fuel-gas cylinders

WHAT I NEED TO DO...

- Restrain all compressed gas cylinders per USC requirements.
- Store incompatible gases a minimum distance of twenty (20) feet apart.
- Do not store compressed gas cylinders by emergency exit routes.
- Keep ignition sources away from flammable and oxidizing gases.
- Wear personal protective equipment (PPE) when handling compressed gas cylinders.

or combustible materials (especially oil or grease) by a minimum distance of 20 feet or by a non-combustible barrier at least five (5) feet high and with a fire resistance rating of least one-half hour.

Cal/OSHA Section 4650 requires the barrier to be at least 18 inches above the tallest cylinder present.

ADDITIONAL CONSIDERATIONS

- DO NOT allow temperatures to exceed 125°F (52°C).
- Keep ignition sources (open flames, electric arc) away from flammable gases and oxidizer gases.
- DO NOT use pure oxygen as a substitute for compressed air.
- DO NOT introduce another product into the cylinder.

REFERENCES

[Cal/OSHA Title 8, §1740. Storage and Use of Cylinders](#)
[DTSC - Compressed Gas Cylinders](#)

Contact labsafety@usc.edu for more information on compressed gas cylinder use and storage; contact hazmat@usc.edu for more information on gas cylinder disposal.