

# Compressed Gas Safety

## What are Compressed Gases?

Compressed gases are any materials or mixtures in containers having an absolute pressure exceeding 40 psi at 70°F (20°C) or exceeding 104 psi at 130°F (54.5°C). Compressed gas cylinders can present a number of unique hazards due to the unusual properties of gases. These hazards can be chemical or physical. By following the precautions of working with compressed gases, these hazards can be mitigated.

## Working with Compressed Gases

- The contents of each cylinder must be clearly labeled.
- Cylinders must be capped or attached to a regulator at all times.
- Do not expose cylinders to excessive dampness, excessive heat (> 51 °C/125 °F), corrosive chemicals or flames.
- Bond and ground all cylinders, lines, and equipment used with flammable compressed gases.
- Electrical equipment used with flammable compressed gases must be designed and approved for such a purpose.



## Storing and Transporting Compressed Gases

- Cylinders must be capped or attached to a regulator at all times.
- Cylinders shall be segregated by hazard class.
- Secure cylinders upright to a substantial, fixed surface (e.g. to the studs within a wall) using restraints made of non-combustible materials such as chains.
- Secure cylinders to or within a rack, rail framework, or similar assembly designed to store compressed gas cylinders.
- Two cylinder restraints (e.g. chain) must be used and placed at roughly 1/3 from the top and 1/3 from the bottom of the cylinder. Restraints must be relatively taught (i.e. not loose).
- Segregate empty and full gas cylinders.
- Keep the number of cylinders to a minimum.
- Oxidizing gases must be stored 20 feet from flammable materials (e.g. hydrogen), or separated by a fire wall.
- Never store more than two cylinders using one set of chains. One set of chains per cylinder is preferred.
- When transporting compressed gas cylinders, always secure the cylinder to a suitable hand truck with a strap or chain. A safety cap shall be used for transport to protect the cylinder valve. Never transport a cylinder with the regulator attached. Never transport a cylinder horizontally. To prevent tipping, always push (never pull) a cylinder on a dolly or a dewart.

## Compressed Gas Waste Management

Empty or no longer needed gas cylinders must be returned to the manufacturer. Do not purchase tanks or lecture bottles that cannot be returned to the manufacturer when empty or partially used. Cylinders are considered empty when they near atmospheric pressure.

## References

- SJSU [Chemical Hygiene Plan](#)

## Need Help?

- Ask the lab/shop supervisor
- Ask the department/college safety staff
- Ask SJSU Environmental Health & Safety
  - Chemical Hygiene Officer: [skye.kelty@sjsu.edu](mailto:skye.kelty@sjsu.edu); 408-924-1978
  - Director: [ehs@sjsu.edu](mailto:ehs@sjsu.edu); 408-924-1969