



Laboratory Safety Fact Sheet: Gas Cylinder

The fact sheet below gives hazard information and precautions for the use of gas cylinder in laboratory settings.

What Are Compressed Gas Cylinders?

Compressed gas cylinders are high-pressure containers used to store gases in compressed, liquefied, or dissolved forms. Because cylinders contain gases under significant pressure, they present **serious physical and chemical hazards** if not handled properly.

Hazards

High Pressure	-Cylinders may contain pressures exceeding 2,000 psi -If valve is damaged or broken, the cylinder can become a projectile (“rocket hazard”)
Chemical Hazards	Depending on the gas, hazards may include: <ul style="list-style-type: none">- Flammable (e.g., hydrogen, acetylene)- Oxidizing (e.g., oxygen)- Toxic (e.g., carbon monoxide, chlorine)- Corrosive (e.g., hydrogen chloride)- Asphyxiant (e.g., nitrogen, argon)
Fire & Explosion	-Flammable gases can ignite easily -Oxidizers can intensify fires -Heat exposure may cause cylinder rupture
Oxygen Displacement	-Inert gases can displace oxygen in confined or poorly ventilated spaces, leading to suffocation

Safe Handling Procedures

Training Required: Only trained personnel can handle compressed gas cylinders.

Securing Cylinders:

- Always store cylinders **upright and secured** with a chain or strap.
- Secure at about a third from the top of the cylinder.
- Keep protective valve caps in place when not in use.

Transport:

- Use an approved cylinder cart.
- Never drag, roll, or carry cylinders by hand.
- Do not lift by the valve or regulator.

Regulators and Connections:

- Use the **correct regulator** designed for specific gas.
- Never force connections or modify fittings.
- Open valves **slowly** while standing to the side of the regulator.
- Close the valve when the cylinder is not in use.

Storage Requirements

- Store in a cool, dry, well-ventilated area.
- Keep away from heat sources and direct sunlight.
- Segregate incompatible gases:
 - o Flammables away from oxidizers
 - o Toxic gases in designated areas
- Empty cylinders should be marked **“Empty.”**

Prohibited Practices:

- Do not store cylinders in exit routes.
- Do not use oil or grease on oxygen regulators or fittings.
- Do not tamper with safety devices or pressure relief valves.
- Do not refill non-refillable cylinders.

Emergency Procedures

Gas Leak:

- If safe to do so, close the valve.
- Evacuate the area if the gas is hazardous.
- Contact EH&S emergency phone or GTPD immediately.

Fire Involving Gas Cylinder:

- Pull the fire alarm and call GTPD.
- Do not attempt to extinguish flames involving compressed gas unless trained and it is safe.

Cylinder Damage

- Do not use damaged cylinders.
- Tag and report to supervisor.

Disposal & Return

- Return cylinders to the supplier when empty by placing in designated area. Contact building manager for questions.

Contact EHS:

For questions, leaks or emergencies:

EHS Emergency Number: 404-216-5237

Georgia Tech Police Department: 404-894-2500

Email: lab-chemsafety@gatech.edu