



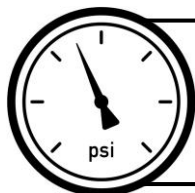
Compressed gas cylinders are crucial for the work performed daily in a wide variety of industries, but they have dangerous risks due to the high pressure and chemical properties of the gases they contain.

There are three major types of compressed gases.

Liquefied gases, like ammonia, propane, and nitrous oxide, are in a liquid state under pressure at room temperature.

Non-liquefied gases, also known as compressed, pressurized, or permanent gases, are typically in a gaseous state at room temperature conditions. Examples include oxygen, nitrogen, helium, and argon.

Dissolved gases, like acetylene, are chemically unstable and can be hazardous.



The average compressed gas cylinder is four feet tall and weighs between 75 and 80 pounds. The pressure of gas in a cylinder is usually measured in PSI which stands for pounds per square inch and some cylinders have contents pressured up to 2,200 psi or more.

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- Always read the label or the markings on the compressed gas cylinder to identify the contents. The color of the cylinder may not always be the best way to identify the gas.
- Before handling, read the cylinder label and the safety data sheet (SDS) for the compressed gas so that you can be aware of the hazards, safety precautions, PPE requirements, and first aid measures.
- If you come across any cylinder that is not labeled, is damaged, has issues, or is leaking, report immediately so the supplier can be contacted.



Compressed gases present unique hazards and properties and any cylinder can be holding a gas that has multiple hazardous properties, like:

- high pressure
- ease of diffusion (spreads widely and easily)
- extreme coldness
- low ignition point or low boiling point
- flammability
- undetectable by sight or smell
- asphyxiation risk
- oxidizing, corrosive, and/or toxic

If compressed gas cylinders are not handled, stored, or transported properly, these hazards can result in chemical and physical dangers for workers.

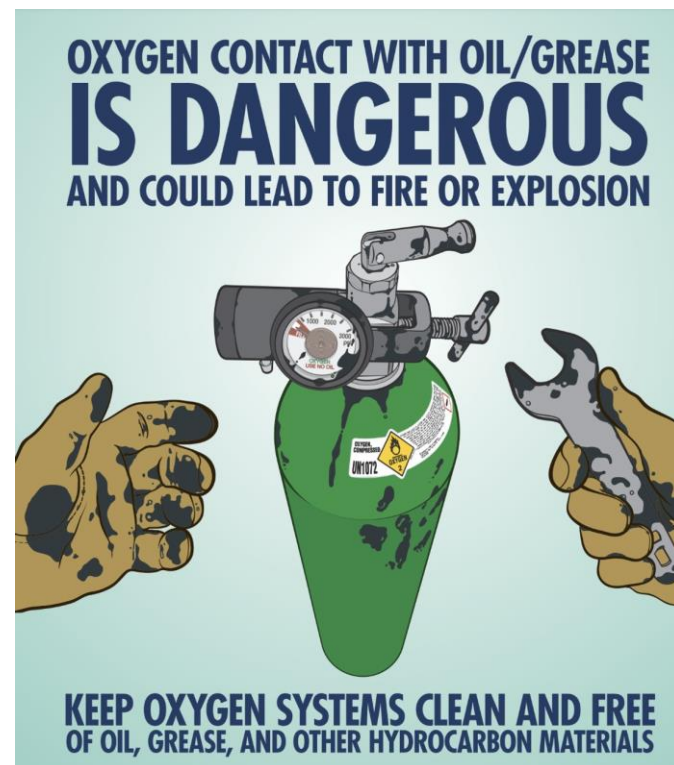
- A sudden, uncontrolled release of the high-pressure contents can cause a cylinder to propel or spin out of control causing injury and damage.
- Gases released from a cylinder may be very cold causing frostbite.
- Inert materials are capable of quickly displacing oxygen in a large area causing suffocation.
- Flammable gases can result in a fire or an exploding cylinder.
- Oxidizing gases can react rapidly and violently with combustible materials.
- A gas with corrosive properties can cause severe chemical burns on the skin.
- Toxic gases create poisonous atmospheres.



- Do not use cylinders that are dented, cracked, or damaged.
- Whether in use, in storage, or empty, compressed gas cylinders should be secured with a chain, strap, rack, or other suitable device. Do not use extension cords, belts, or makeshift or unapproved materials to secure the cylinders.
- Ignition sources, like electrical tools, cigarettes, or open flames, should be kept away from compressed gas cylinders.
- Do not attempt to make repairs to cylinders or valves.
- When work is finished, when cylinders are empty, or when cylinders are moved, the cylinder valve should be closed.

OSHA Standard 1926.350(a)(1) *When transporting, moving, and storing compressed gas cylinders the valve protection caps shall be in place and secured.*

- Keep grease and oil away from oxygen cylinders. If you have grease or oil on your hands or gloves do not handle oxygen cylinders.
- Whether the cylinder is full or empty, secure the cap in a straight, hand-tightened manner.
- Do not use compressed gas cylinders as rollers or supports, even if they are empty.
- Do not attempt to return gases into a cylinder. Transfilling, or transferring gas from one cylinder to another, should only be performed by the supplier or trained personnel.



Compressed Gas Association (CGA)
cganet.com/resources/safety-posters/



Connect all equipment before opening the valve.

- Always use the correct valve outlet connection. Never force connections that do not fit.
- After connecting all the equipment, point the valve outlet away from personnel, and open the valve slowly.
- Do not use a hammer or a wrench to open the valve. If the valve cannot be opened by hand notify the supplier.
- Only tighten the connections when the system is not under pressure.

Transport compressed gas cylinders with a suitable hand truck or use equipment that is specifically designed for moving cylinders safely.

- Before moving a cylinder, ensure the valve is closed.
- Do not drag or drop cylinders. Do not allow them to knock forcefully into each other or fall to the ground.
- Do not transport a damaged or leaking compressed gas cylinder.

OSHA Standard 1926.350(a)(3) *Cylinders shall not be intentionally dropped, struck, or permitted to strike each other violently.*



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- Store compressed gas cylinders in an upright, secured position with the valve closed and the cylinder cap secured.
- Compressed gas cylinders should be stored in an area with adequate ventilation.
- Do not store compressed gas cylinders near heat sources, open flames, or anything that can become a potential ignition source.
- Compressed gas cylinders should not be stored in any area where they will be exposed to weather extremes.
- Do not store compressed gas cylinders where heavy objects may fall on them.
- Do not store oxygen cylinders within 20 feet of fuel gas cylinders or any other highly combustible materials.

OSHA Standard 1926.350(a)(11) *Inside of buildings, cylinders shall be stored in a well-protected, well-ventilated, dry location, at least 20 feet from highly combustible materials.*

- Empty compressed gas cylinders should be labeled as empty, stored separately away from full cylinders with the valve closed and the cylinder cap secured, and then returned with all the original accessories.



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