



Compressed Gas Safety

The purpose of this section is to assist the laboratory worker with identification, storage, maintenance, and handling of compressed gases. Compressed gases can be hazardous because each cylinder contains large amounts of energy and may have high flammability and toxicity potential.

Labeling and Information-Compressed gas containers may be labeled in five ways:

- Flammable Gas – labels show a flame on red label.
- Non-flammable Gas – labels depict a gas canister on a green background.
- Poisonous Gas – labels show a skull and crossbones.
- Oxygen-containing Gas – labels are designated by a flaming letter "O".
- Chlorine Gas – labels are distinctly marked.

Know the contents of the cylinder and be familiar with the properties of the gas

- The contents of the cylinder or compressed gas should be clearly marked and identified with proper labels or tags on the shoulder of the cylinder.
- Those cylinders or compressed gases that do not comply with identification requirements should be returned to the vendor.
- If two labels are associated with one cylinder, affix the labels 180° apart on the shoulder of each cylinder.
- Label all empty cylinders EMPTY and date the tag.
- All regulators, gauges, valves, manifolds, must be designed for the particular pressures and gases involved.
- They should bear the inspection seal of either Underwriters' Laboratories (UL) or Factory Mutual Engineering Division of Associated Factory Mutual Fire Insurance Companies (FM).

Check all cylinders for leaks!

Use a leak detector fluid such as "Snoop" which will show if any leaks exist (by the presence of bubbles forming where the Snoop is applied). The use of Snoop over soap is recommended because Snoop is apparently far less corrosive to the valves and connectors.

Often incompatible cylinders must be placed next to one another for a particular application. Test those cylinders before their use - daily if necessary - to ensure that the incompatible contents are not leaking, mixing and doing their incompatible thing!! We also recommend that you keep a tag on the tank to remind users to leak test before each use.

Storage and Handling

- All cylinders should be stored in cool, dry, well-ventilated surroundings and away from all flammable substances including oil, greases, and gasoline.
- DO NOT subject any part of a cylinder to a temperature higher than 125°F.
- Cylinders should not be located where objects may strike or fall on them.
- Store cylinders by gas type, separating oxidizing gases from flammable gases.
- All cylinders and compressed gases (full or empty) should be properly fastened and supported by straps, belts, buckles, or chains at 1/3 and 2/3 height of the bottle to prevent them from falling and causing bodily harm.
- A maximum of two cylinders per restraint is preferred.
- Cylinders should not be stored in damp areas, or near salt, corrosive chemicals, fumes, heat, or direct sunlight
- DO NOT SMOKE in areas where there are flammable gases being used or stored.
- DO NOT extinguish a flame caused by a gas until the gas source has been shut off.
- A cylinder should only be moved while strapped to a wheel cart to ensure stability. When storing or moving cylinders, always attach safety caps.
- DO NOT heat the cylinder or place a cylinder where it may become part of an electrical circuit.
- Compressed gases must be handled as high-energy sources and dangerous projectiles.
- All cylinders should be checked for damage prior to use.
- DO NOT repair damaged cylinders yourself. Damaged or defective cylinders, valves, etc., must be taken out of use immediately and returned to the manufacturer for repair.
- Each regulator valve should be inspected annually. Never force valve or regulator connections. Threads and the configuration of valve outlets are different for each

family of gases to prevent mixing of incompatible gases. DO NOT use lubrication on valve regulators.

Disposal

- Empty cylinders should be labeled "empty" and returned to the appropriate area or vendor for refill or disposal.
- Empty lecture bottles may be returned to the manufacture or vendor - call Environmental Health and Instructional Safety Office at extension 7233 for assistance.
- Any suspected "unknown" cylinders should be reported to Environmental Health and Instructional Safety Office at extension 7233.
- Always leave at least 25psi in all "empty" cylinders to prevent contamination and the formation of explosive materials.

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