NATIONAL HIGH MAGNETIC FIELD LABORATORY
Operated by Florida State University, University of Florida, Los Alamos National Laboratory
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Compressed Gas Cylinders Policy
Handling, Storage, Receipt and Use

Handling

Compressed gas cylinders should be handled only by those familiar with the hazards and who understand how to safely handle, transport and store compressed gas cylinders. Cylinders containing compressed gases are heavy and awkward to move. Improper handling of compressed gas cylinders can result in sprains, strains, falls, bruises, or broken bones. Other hazards such as fire, explosion, chemical burns, poisoning, and cold burns could occur if gases accidentally escape from the cylinder due to mishandling. Take the following precautions to prevent injuries caused by the improper handling of compressed gas cylinders.

NEVER

- Drag or slide cylinders, even for short distances.
- Drop cylinders or permit them to strike each other violently.
- Subject cylinders to mechanical shocks that may cause damage to their valves.
- Use cylinders as rollers for moving material or other equipment.
- Tamper with pressure-relief devices.
- Permit oil, grease, or other readily combustible substances to come in contact with cylinders, valves, or other equipment in oxidizer service.
- Remove any product labels or shipping hazard labels.
- Refill compressed gas cylinders. This is to be done only by qualified producers of compressed gases.
- Lift a cylinder by its cap using a sling or a magnet.
- Attempt to catch a falling cylinder.
- Allow cylinders within the 100 Gauss line

ALWAYS

- Move cylinders using a suitable hand truck or cart.
- Leave the valve protection cap and valve seal outlet in place until the cylinder has been secured in place and is ready to be used.
- Secure cylinders when in storage, transit, or use.
- When returning cylinders to the supplier, properly close the cylinder valve, replace and secure any valve outlet seals, and properly install the cylinder cap.
- Use a cylinder cage or cradle to lift a cylinder.
- Use the proper PPE for cylinder handling (safety glasses, leather gloves and safety shoes).

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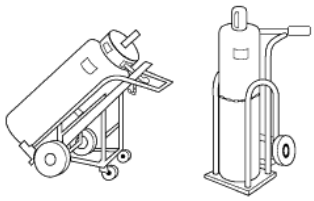


Cylinder Trolleys

Storage

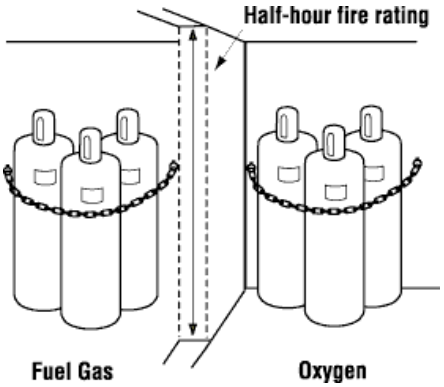
Take the following precautions to prevent injuries caused by asphyxiation, fire, explosion, high pressure, and improper handling of compressed gas cylinders.

NEVER

- Allow storage temperature to exceed 125°F (52°C).
- Permit smoking or open flames in oxidizer or flammable gas storage areas.
- Expose cylinders to corrosive materials such as ice melting compounds.
- Do not store oxidizing gases near flammable solvents, combustible materials or near unprotected electrical connections, gas flames or other sources of ignition.

ALWAYS

- Store cylinders upright with valve outlet seals and valve protection caps in place (hand tight).
- Secure cylinders when in storage, transit, or use.
- Segregate full and empty cylinders.
- Store cylinders in a dry, cool, well-ventilated, secure area protected from the weather and away from combustible materials.
- Store only the amount of compressed gas required for the specific application.
- Store cylinders away from heavily traveled areas and emergency exits.
- Provide adequate access for cylinder handling.
- Visually inspect stored cylinders on a routine basis, for any indication of leakage or problems.
- Protect cylinders from wet or damp ground.
- Separate cylinders containing oxygen or oxidizing gases, e.g., chlorine, (empty or full) from cylinders containing flammable gases by a minimum distance of 20 feet or by a barrier at least 5 feet high having a fire-resistance rating of at least one-half hour, e.g., a concrete block wall.



Proper Use of Compressed Gases

Take the following precautions to prevent injuries caused by the improper use of compressed gases.

NEVER

- Attempt to mix gases in a cylinder.
- Insert an object (e.g., wrench, screwdriver, etc.) into valve cap openings to remove a stuck cylinder cap. Doing so may damage or open the valve, causing a leak to occur. Use an adjustable strap-wrench to remove over-tight or rusted caps.
- Allow any part of a cylinder to be exposed to temperatures exceeding 125°F (52ºC).
- Permit cylinders to become part of an electrical circuit.
- Use oxygen as a substitute for compressed air.
- Strike an arc on a cylinder.
- Return product into a cylinder.
- Introduce another product into a cylinder.
- Use cylinder color as a primary means to identify the contents of a cylinder.
- Heat a cylinder to increase its pressure.
- Discharge the contents from any gas cylinder directly toward any person.
- Refill any non-refillable cylinder after use of the original contents.
- Force cylinder valve connections that do not fit.
- Reduce the residual pressure of a cylinder below the operating pressure of the system.
- Modify, tamper with, paint, deface, obstruct, remove or repair any part of the cylinders

ALWAYS

- Know and understand the gases and associated equipment you will be using. Refer to the supplier's MSDS to determine the proper PPE and any other special requirements for the gas being used.
- Secure cylinders when in storage, transit, or use.
- Use a pressure regulating device where gas is admitted to a system of lower pressure rating than the supply pressure and where, due to the gas capacity of the supply source the system rating may be exceeded.
- Use a suitable pressure relief device to protect a system using a compressed gas where the system has a pressure rating less than the compressed gas supply source and where, due to the gas capacity of the supply source or for any other reason, the system pressure rating may be exceeded.
- Use regulators approved for the specific gas.
- Leak-test lines and equipment with an inert gas before using.
- Use check valves when reverse flow is possible especially in a multi gas system of incompatible gases.
- Loosen the valve outlet seal slowly when preparing to connect a cylinder.
- Open cylinder valves slowly and carefully after the cylinder has been connected to the process.
- Keep container valve closed when not in use.
- Stand clear of the regulator and valve outlet while opening the valve.
- Prevent sparks and flames from contacting cylinders.

- Discontinue use and contact the supplier if a cylinder valve is difficult to operate. Wrenches should not be used on valves equipped with handwheels. If the valve is faulty, tag the cylinder, identifying the problem, and notify the supplier.
- Close the cylinder valve and release all pressure from the downstream equipment connected to the cylinder anytime an extended non-use period is anticipated.
- Remember, the cylinder label or decal is the only positive way to identify the contents of a cylinder.
- Keep liquid oxygen containers, piping and equipment clean and free of grease, oil and organic materials.

CYLINDER GAS RECEIPT AND DELIVERY

A. INCOMING / DISTRIBUTION LOCATION

The driver will check in with the receiving department upon arrival on site. Receiving personnel will tag the cylinders with a three part status tag (Full, In Use, Empty), stamp the back of the tag with receipt date, enter the requestors name, project code and BM request number and sign the delivery receipt. Driver will deliver cylinders to the requested locations (OPMD Receiving Dock, NMR Receiving Dock or C wing receiving area) and pick up any empties.

B. DELIVERY / PICK –UP

Receiving will alert the requestor of their gas delivery via e-mail. The requestor should check that their gas was received. A non-reply to this email within 48 hours confirms receipt. Appropriate cylinder trucks are available at the OPMD Receiving area to safely transport gas to work areas.

C. EMPTY CYLINDERS

Requestors must assist in keeping control of empty cylinders. The status tag “Full” and “In Use” portions should be torn off leaving only the “Empty” portion indicating the cylinder is in fact empty. Empties should be returned to one of the three cylinder storage areas in the sections labeled “Empty Cylinders” (oxidizers properly segregated from flammables) until they can be picked up by the transporter. NHMFL Receiving will contact the gas vendor to arrange pick-up of the accumulated empties, as required to keep the accumulation to a minimum.

If you have any questions or concerns in regards to this policy, please contact the safety department at 4-6955 or 4-0233.