

WORKING WITH COMPRESSED GAS CYLINDERS**Work description:** Use of Compressed Gas Cylinders**Scope:** Handling, Storage, Use and Transportation of Compressed Gas Cylinders**References:**

- U.S. Occupational Safety and Health Administration (OSHA) Occupational Safety and Health Standards for General Industry contained in Title 29 of the Code of Federal Regulations Part 1910 (29 CFR 1910) (§1910.101)
- State of Hawaii - Development Occupational Safety and Health Section (HIOSH) - Hawaii Administrative Rules Title 12, Department of Labor and Industrial Relations Subtitle 8, Hawaii Occupational Safety and Health Division Part 2, General Industry Standards Chapter 60 (§12-60-2(b) Safety and health programs.)

PPE and precautions

Task PPE - As per Task Risk Assessment
Compressed Gas / Cylinder PPE – as per substance requirements

Competencies or qualifications

Task Competence - As per Task Risk Assessment
Compressed Gas / Cylinder Competence – as per substance requirements

Licenses or permits required

Task Licenses - As per Task Risk Assessment
Compressed Gas / Cylinder Licenses – as per substance requirements

Tools and equipment required

Task Tools and Equipment - As per Task Risk Assessment
Compressed Gas / Cylinder Tools and Equipment – as per substance requirements

**Note**

The improper handling, use, storage, and transportation of compressed gas cylinders can result in employee injury or death, fires and explosions, and/or property damage. The following guidelines and procedures shall be used by employees for the safe handling, use, storage, and transportation of compressed gas cylinders.

All personnel involved in working with compressed gas cylinder shall be trained. Employees without the required training shall not be permitted to work with compressed gas cylinder (including Handling, Storage, Use and Transportation).

Handling of Compressed Gas Cylinders

All

- Do not remove or change the marks and numbers stamped on the cylinders.
- Do not use cylinders for rollers, supports, or any purpose other than to contain gas.
- Do not tamper with safety devices in valves or in cylinders.
- Clearly write EMPTY in chalk or other acceptable marking method on empty cylinders that are to be returned to the gas supplier.
- Always consider cylinders to be full and handle with corresponding care.
- Securely support and protect cylinders from damage at all times. Cylinders must not be left “free standing” at any time.
- Cylinders should never be exposed to temperatures above 125 degrees Fahrenheit.
- Never place cylinders where the cylinders could become part of an electrical circuit.
- Do not re-paint cylinders.
- Never take cylinders (other than a self-contained breathing apparatus cylinder) into a confined space.
- Always use soap and water to check for leaks on a compressed gas cylinder or any connections made to the cylinder. Never use a flame or type of ignition source for this purpose.
- Cylinder valves shall be closed and valve caps in place when cylinders are in storage, in transit, not in use, or empty.

Approved By:☐ Director, Operations and Maintenance☐ Department Manager☐ Manager, HSE (Operations and Maintenance)**Signature:****Date:****Document Code**

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Use of Compressed Gas Cylinders	<ul style="list-style-type: none"> Valve wrenches or wheels shall be in operating position when cylinders are in use so that the gas flow can be quickly turned off in case of an emergency. Nothing shall be placed on top of compressed gas cylinders that could damage safety devices or interfere with the quick closing of valves. Valves shall be opened slowly while positioned to the side of the outlet. Never open a cylinder valve while standing in front of the outlet. Before attaching a regulator to a cylinder, the valve shall be opened slightly and closed immediately. Never crack a fuel gas cylinder within 50 feet of an ignition source. Quick closing valves on fuel gas cylinders shall not be opened more than 1 ½ turns. Acetylene cylinder valves shall not be opened more than 1 ½ turns of the spindle, and preferably no more than ¾ of a turn. Cylinder valves shall be opened by hand. If valves cannot be opened by hand, contact the gas supplier. Never attempt to open a valve with a hammer or wrench. Cylinders shall be used only for their designed purpose of containing a specific compressed gas. Employees shall not attempt to refill cylinders. Cylinders shall be returned to the gas supplier to be refilled. When not in use and prior to transport, cylinder valves shall be closed, regulators shall be removed, and valve protection caps shall be put in place. Cylinders, cylinder valves, couplings, regulators, hoses, etc. shall be kept free from oily or greasy substances. In addition, oxygen cylinders and related equipment shall not be handled with oily gloves or hands. Regulators and other equipment used with cylinders must be compatible with cylinders and gases contained within the cylinders. Before a regulator is removed from a cylinder valve, the cylinder valve shall be closed and the gas released from the regulator.
Storage of Compressed Gas Cylinders <i>All</i>	<ul style="list-style-type: none"> Cylinders shall be stored in well-ventilated locations and protected from inclement weather. No smoking is permitted within 50 feet of a cylinder storage area. Cylinders containing the same gas shall be stored in a segregated group. Empty cylinders shall be labeled as empty and stored in a segregated group separate from full cylinders. Cylinder storage areas shall be clearly marked with signs. Cylinders in storage shall be separated from flammable or combustible liquids and from easily ignitable materials (such as wood, paper, packaging materials, oil, and grease) by at least 40 feet or by a fire resistive partition at least 5-feet high having at least a 1-hour rating. Cylinders containing oxygen or other oxidizing gases shall be separated from other cylinders in storage containing fuel gases by at least 20 feet or by a fire resistive partition at least 5-feet high having at least a 1-hour rating. Cylinders containing acetylene shall be stored valve end up. Cylinder valves shall be closed and valve caps in place when cylinders are in storage. Cylinders in storage shall be secured in an upright position at all times.
Transportation of Compressed Gas Cylinders <i>All</i>	<ul style="list-style-type: none"> Cylinder valves shall be closed and valve caps in place when cylinders are being transported. Cylinders shall be transported in a secure upright position except when being hoisted (except acetylene cylinders, which shall never be laid horizontal). Cylinders transported by crane, hoist, or derrick shall be securely transported in cradles, nets, or skip pans, and never directly by slings, chains, or magnets. A hand truck or dolly shall be used for the transfer of compressed gas cylinders from storage areas to work areas. Never drag, push, or pull cylinders during transport. Cylinders shall be loaded for transport to minimize movement and secured to prevent violent contact or upsetting. Cylinders that are dropped during transport or otherwise subjected to damage during transport shall be returned to the gas supplier for inspection. Motor vehicle transport of compressed gas cylinders by employees shall be performed by personnel who have received the appropriate U.S. Department of Transportation training and who are in possession of the appropriate driver's license endorsements required for the specific vehicle and type of cargo. Motor vehicle transport of cylinders shall only be performed with open body vehicles. Cylinders shall be inspected prior to transport and labeled appropriately. Incompatible materials (e.g., flammables and poisons or corrosives) shall not be transported on the same load. Smoking is prohibited during the transport of cylinders.

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Inspection, Maintenance and Marking of Compressed Gas Cylinders <i>All</i>	<p>Compressed gas cylinders must be visually inspected daily for leaks, cracks, or other indications of damage. The visual inspection shall include the cylinder, safety relief devices, valves, valve protection caps, and stems. If a cylinder is thought to be defective, it shall be taken out of service and returned to the gas supplier for inspection and repair, if necessary. To take a cylinder out of service, the valve shall be closed, and valve protection cap replaced, and the cylinder shall be clearly marked or tagged "OUT OF SERVICE: DEFECTIVE." Under no circumstances shall an employee attempt to make repairs on a compressed gas cylinder.</p> <p>Marking of compressed gas cylinders to identify the gas content of the cylinder must be legible (in English) with either the chemical or trade name of the gas. Markings shall be by means of stenciling, stamping, or labeling and shall not be readily removable. Whenever practical, the marking shall be on the shoulder of the cylinder for easy identification. Prior to accepting compressed gas cylinders from a gas supplier, personnel shall inspect the cylinders for proper markings.</p>
Leaking Compressed Gas Cylinders <i>All</i>	<p>Leaking compressed gas cylinders (which cannot be stopped by closing the valve) shall be moved to an isolated outside location, and the valve shall be cracked to allow the gas to escape slowly. The area shall be marked to keep personnel out of the area and all ignition sources shall be removed within 50 feet. Leaking cylinders containing different gases shall not be bled simultaneously in close proximity (within 50 feet) of one another. Bleeding of cylinders shall be accomplished only under the direct supervision of qualified person.</p>