

SAFETY BULLETIN

SAFE USE AND HANDLING OF SMALL CYLINDERS

The purpose of this safety bulletin is to provide guidelines for the safe use and handling of small cylinders, ensuring the continuation of their excellent safety record. Additional information can be found in many CGA publications including, but not limited to, [CGA C-7](#), [CGA G-1](#), [CGA G-6.8](#), [CGA P-1](#), [CGA P-2](#), [CGA V-1](#), and [CGA V-9](#) [1, 2, 3, 4, 5, 6, 7].

For more than 50 years, an estimated 50 million small cylinders of 30 lb (13.6 kg) water capacity or less have been safely used in various compressed gas services. This includes D and E medical gas cylinders, B and MC acetylene cylinders, DOT-39 and TC-39M cylinders, and self-contained breathing apparatus (SCBA) cylinders, etc. Also included are small cylinders, often referred to as lecture bottles, in use since the 1930s in high school and university science and other laboratories when small quantities of compressed gases are required during lectures and lab experiments.

With the expanded use and applications of small compressed gas cylinders including SCBA, calibration gases, home medical care, etc., these types of cylinders are more often used by personnel outside the compressed gas industry in noncommercial applications. Therefore, the opportunity for cylinder damage and abuse has increased.

These safety guidelines shall be followed:

- Cylinders shall be labeled in accordance with the requirements of [CGA C-7](#) [1]. The user shall follow precautionary statements and handling requirements found on the label;
- Cylinders shall be secured at all times (except in process) or stored in protective containers in a cool dry area when not in use. Cylinders may be stored in direct sunlight except in locations where extreme temperatures prevail;
- Never permit oil, grease, or other combustible substances to come in contact with the valve or cylinder. Certain gases such as oxygen and nitrous oxide could react with the material with explosive violence;
- Do not lift a cylinder using the valve or valve handwheel as a handle;
- Never drop cylinders or permit them to strike each other;
- Dropped cylinders that have impacted the valve shall be removed from service, marked that they were dropped, and returned to the supplier;
- Connecting small cylinders to the end user equipment shall not require excessive force;
- Small cylinder valves can be damaged by overtightening. The length of wrench used with the valve shall be the shortest to open and close the valve leak-tight without causing damage to the stem or valve body seat. It is recommended that wrenches supplied by valve manufacturers for particular applications be used where available. Adjustable wrenches or pliers are not recommended;
- Never attempt to open a damaged valve; contact the supplier; and
- Check for leaks at all connections before use.

These guidelines are precautions that need to be understood and used before handling or using compressed gas cylinders. If you do not understand or require additional information, contact your gas supplier.

References

Unless otherwise specified, the latest edition shall apply.

- [1] **CGA C-7**, *Guide to the Preparation of Precautionary Labeling and Marking of Compressed Gas Containers*, Compressed Gas Association, Inc., 14501 George Carter Way, Suite 103, Chantilly, VA 20151. www.cganet.com
- [2] **CGA G-1**, *Acetylene*, Compressed Gas Association, Inc., 14501 George Carter Way, Suite 103, Chantilly, VA 20151. www.cganet.com
- [3] **CGA G-6.8**, *Transfilling and Safe Handling of Small Carbon Dioxide Cylinders*, Compressed Gas Association, Inc., 14501 George Carter Way, Suite 103, Chantilly, VA 20151. www.cganet.com
- [4] **CGA P-1**, *Safe Handling of Compressed Gases in Containers*, Compressed Gas Association, Inc., 14501 George Carter Way, Suite 103, Chantilly, VA 20151. www.cganet.com
- [5] **CGA P-2**, *Characteristics and Safe Handling of Medical Gases*, Compressed Gas Association, Inc., 14501 George Carter Way, Suite 103, Chantilly, VA 20151. www.cganet.com
- [6] **CGA V-1**, *Standard for Compressed Gas Cylinder Valve Outlet and Inlet Connections*, Compressed Gas Association, Inc., 14501 George Carter Way, Suite 103, Chantilly, VA 20151. www.cganet.com
- [7] **CGA V-9**, *Compressed Gas Association Standard for Compressed Gas Cylinder Valves*, Compressed Gas Association, Inc., 14501 George Carter Way, Suite 103, Chantilly, VA 20151. www.cganet.com

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A listing of all publications, audiovisual programs, safety and technical bulletins, and safety posters is available via the Internet at our website at www.cganet.com. For more information contact CGA at Phone: 703-788-2700, ext. 799. E-mail: customerservice@cganet.com.

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Cylinder Valve Committee

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