



**A STANDARD OPERATING PROCEDURE
for**

**Care, Use, and Handling of
Compressed Gas Cylinders**

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U.S. General Services Administration
Safety and Environmental Management Team
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INTRODUCTION

This Standard Operating Procedure (SOP) has been developed for the purpose of providing safety precautions on the safe handling of compressed gas cylinders. Any GSA facility using compressed gas cylinders must have written procedures on the use, storage, shipping, marking and labeling compressed gas cylinders. Through the use of this SOP, employee injury or extensive damage to property may be prevented.

It should be noted that some compressed gas cylinders contain materials that can have a toxic effect on the body system and all employees working with them should have knowledge of their proper handling and use. All GSA managers/supervisors have the responsibility to provide thorough training to those employees who handle compressed gas cylinders. Supervisors are responsible to provide a safe and healthful workplace for GSA employees, as well as a safe and healthful environment for the visiting public.

Title 29, Code of Federal Regulations, Part 1910 may be obtained from the local OSHA Area Office or purchased from the Superintendent of Documents, Government Printing Office, Washington, DC 20402. Handbooks and pamphlets published by the Compressed Gas Association may be ordered from them at 1235 Jefferson Davis Highway, Arlington, VA 22202.

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General Services Administration
Heartland Region
CARE, USE, AND HANDLING OF COMPRESSED GAS CYLINDERS

1. POLICY.

a. Guidelines established by the Occupational Safety and Health Administration (OSHA) must be followed by all Federal agencies regarding the compressed gas cylinder. Additional references when using compressed gas cylinders to do welding and cutting can be found in and the GSA SOP Welding, Cutting and Brazing (12/91). and other information published by the Compressed Gas Association, 1235 Jefferson Davis Highway, Arlington, VA 22202, are recommended for guidance regarding use of compressed gas cylinders.

b. Since many GSA facilities use or store compressed gas cylinders, it is necessary to provide guidance as a reminder that compressed gas cylinders are a potential threat if not properly cared for.

2. REFERENCES.

a. Title 29, Code of Federal Regulations, Part 1910, Subpart H, (29 CFR 1910.101).

b. Title 29, Code of Federal Regulations, Part 1910, Subpart Q, (29 CFR 1910.253).

c. The Handbook of Compressed Gases, Compressed Gas Association.

d. Pamphlet C-6 (Standards For Visual Inspection Of Compressed Gas Cylinders), Compressed Gas Association.

e. Pamphlet C-7 (Guide to The Preparation of Precautionary Labeling and Marking of Compressed Gas Containers), Compressed Gas Association.

f. Pamphlet P-1 (Safe Handling Of Compressed Gases in Containers), Compressed Gas Association.

g. Pamphlet S-1.1 (Safety Relief Device Standards Part I - Cylinders For Compressed Gases), Compressed Gas Association.

3. GENERAL INFORMATION.

a. Compressed gas cylinders must meet the regulations of the Department of Transportation (DOT) if cylinders are to be transported.

b. Cylinders must not be charged except by the owner or with the owner's written consent, and only then in accordance with DOT regulations.

c. Transferring compressed gases from large to small cylinders by GSA employees is not permitted.

d. GSA personnel are not permitted to remove or to change prescribed numbers or marks stamped into cylinders.

e. If a cylinder leaks and the leak cannot be remedied by tightening a valve or packing nut, close the valve and attach a tag noting the cylinder is not serviceable. If the gas is toxic, utilize appropriate respiratory protection. If the gas is flammable, keep away from ignition sources. The leaking cylinder must be removed out-of-doors to a well ventilated location. In the event the gas is flammable or toxic, an appropriate sign warning against these hazards should be placed at the cylinder. Notify the gas supplier and follow instructions on how to return the cylinder.

***CAUTION:** Depending upon the contents of a leaking cylinder, it may be necessary to evacuate the area and contact the fire department for assistance. When confronted with a leaking cylinder, the employee **must** have prior knowledge of the required action as specified in the Material Safety Data Sheet (MSDS). Therefore, it becomes imperative that both the supervisor and the employee are well versed in the MSDS **BEFORE** commencing work with a cylinder.*

f. Unless specified by the DOT regulations, each cylinder must bear the proper DOT label required for the compressed gas contained therein.

g. Do not smear or remove any markings, labels, decals, tags, and stencil marks used for identification of content attached by the supplier.

h. When returning empty cylinders, be sure to close the valve and ensure that the cylinder valve protective caps, outlet caps, or plugs, if used, are replaced.

i. Cylinders containing compressed gases should not be subjected to a temperature above 125 degrees F. Flames must not be permitted to come in contact with any part of a compressed gas cylinder.

j. Never attempt to repair or to alter cylinders, valves, or safety relief devices.

k. Cylinders should never be used as rollers, supports, or for any purpose other than to contain the content as received.

l. Cylinder valves must be closed at all times, except when in active use.

m. Notify the owner of the cylinder if any condition has occurred which might permit any foreign substance to enter the cylinder or valve, providing details and the cylinder serial number.

n. Cylinders must not be placed where they might become part of an electric circuit.

o. Cylinders are not to be repainted by GSA activities.

p. Any doubts about the proper handling of a compressed gas cylinder or its content, must be referred to the manufacturer or supplier of the gas.

4. MOVING CYLINDERS.

a. Where cylinders are designed to accept removable caps for valve protection, such caps must be kept on cylinders at all times except when cylinders are in use.

CAUTION: *To preclude loss, cylinder caps should be retained near the work area.*

b. Do not lift cylinders by the cap.

c. Never drop cylinders or allow them to strike against each other or against other surfaces.

d. Avoid rolling, dragging, or sliding cylinders. It is safer to move cylinders, even short distances, by using a suitable device designed for cylinder movement. Use a suitable hand truck, fork truck, roll platform or similar device with the cylinder firmly secured for transporting in a vertical position.

5. STORING CYLINDERS.

a. Cylinders must be stored in accordance with all local, state and municipal regulations and in accordance with appropriate standards of the Compressed Gas Association, Inc., and the National Fire Protection Association.

b. Areas where cylinders are stored should be prominently posted stating the names of the gases to be stored.

c. If different types of gases are stored at same location, cylinders must be grouped by types of gas, and the groups arranged to take into account the gases contained; e.g., flammable gases should not be stored near oxidizing gases. Different types of gases must be separated by fire resistive walls or by distance.

d. Flammable and oxidizing gases, such as typically used for welding and brazing, must be separated when in storage by:

(1) A minimum of 20 feet, **or**

(2) A fire wall of at least 5 feet tall and rated for at least 30 minutes of fire resistance.

NOTE: Consult National Fire Protection Association (NFPA) Codes for information relative to fire separations and fire resistive walls.

e. Charged and empty cylinders must be stored separately with the storage layout so designed and planned that cylinders consisting of old stock can be removed first with a minimum handling of other cylinders.

f. Storage rooms should be fire-resistant if practical, and should be kept dry, cool and well ventilated.

g. Cylinders must never be stored near open flames or highly flammable substances such as oil, gasoline.

h. During hot temperatures, such as summertime, do not store cylinders in direct sunlight.

i. Cylinders must be stored upright and secured against accidental falling or tipping. Typically, this involves chaining cylinders to an immovable object, such as a wall.

j. Where cylinders have been placed in service but will not be further used for an extended period of time, remove the regulator or manifold, replace the valve protection cap (if the cylinder is designed for such caps), and place the cylinders in proper storage (including proper separation for incompatible gases).

k. Cylinders should not be exposed to continuous dampness; near salt or other corrosive chemicals or fumes. Cylinders stored in the open must be protected from the ground to prevent rusting.

l. Cylinders should be protected from objects that will produce a cut or abrasion in the, surface of the metal.

m. Do not store cylinders near elevators or gangways, or in locations where heavy moving objects may strike or fall on them.

n. Where cylinders are designed to accept caps for valve protection, such caps must be kept on cylinders in storage.

o. If ice or snow accumulate on a cylinder, thaw at room temperature.

p. Cylinders must be protected against tampering by unauthorized individuals.

NOTE: *Compressed gas cylinders must be handled with care, used only by qualified personnel, and stored in a protected, upright manner, separated from noncompatible substances.*

6. WITHDRAWING CYLINDER CONTENT.

a. Only experienced or trained persons should be allowed to handle compressed gas cylinders and use cylinder contents.

b. Personnel responsible for the handling of the cylinder and connecting it for use should check the identity

of the gas by reading the label or other markings on the cylinder before using.

c. Removable-type valve protective caps must remain in place until ready to withdraw content, or to connect to a manifold.

7. INSPECTION OF CYLINDERS.

a. Regulations of the DOT require that a cylinder be condemned when it leaks, or when internal or external corrosion, denting, bulging, or evidence of rough usage exists to the extent that the cylinder is likely to be weakened appreciably.

b. Experience in the inspection of cylinders is an important factor in determining the acceptability of a given cylinder for continued service.

c. GSA users must be trained to perform cylinder inspection.

d. Each GSA manager and supervisor shall determine that compressed gas cylinders under his/her control are in a safe condition to the extent that this can be determined by visual inspection.

e. Conduct any internal or external inspections as may be necessary to determine the presence of contaminants, corrosion products or internal lining materials which might react with the new gas or endanger the serviceability of the cylinder.