**COMPRESSED GAS SAFETY**

The purpose of this program is to establish guidelines for the protection and safety of Piedmont Service Group's (PSG) employees who handle and use compressed gases.

It is the policy of PSG to permit only trained and authorized employees to handle, store, use and inspect compressed gases and equipment. This policy is applicable to daily users and to those who only occasionally have cause to use such equipment. Safe transporting requirements are also described below.

**Training**

 Employees who use and handle compressed gas cylinders will be trained before initial job assignment and/or job reassignment. Employees will be trained in the safe use, inspection, handling, and storage of compressed gas cylinders. Refresher training shall be provided at the discretion of the supervisor.

**Inspections**

 Compressed gas cylinders must be visually inspected before use for leaks, cracks, etc. This visual inspection will include the cylinder, safety relief devices, valves, protection caps, hoses, connections and stems. If a cylinder is thought to be defective or leaking, move it outside and it should be returned to the supplier for replacement. Under no circumstances should employees attempt to repair defective cylinders. Gauges should be checked to ensure that the gas under pressure is not left in hoses when operations are completed.

**Labeling**

 For the purpose of identifying the gas content, compressed gas cylinders shall be legibly marked with either the chemical or trade name of the gas. Such marking 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.

**Storage**

The storage of compressed gas cylinders requires precautions and following these safety guidelines.

General Precautions:

 •Cylinders shall be secured in an upright position in a safe, dry, well-ventilated place prepared and reserved for the purpose.

 •Cylinders shall not be kept in unventilated enclosures such as gang boxes or lockers.

 •Cylinders shall not be stored in the same area as flammable substances, such as oil and volatile liquids or near sources of heat, such as radiators or furnaces.

 •Cylinders shall not be stored near elevators, gangways, stairwells, or other places where they can easily be knocked down or damaged.

 •Empty and full cylinders shall be stored separately, with empty cylinders being plainly identified as such to avoid confusion.

 Gas Specific Storage Guidelines:

 Oxyge*n* cylinders should not be stored within 20 feet of highly combustible materials, oil, grease, wood shavings, or cylinders containing flammable gases. (However, for PSG, oxygen and acetylene are typically paired on a common transfer cart for use.) If closer than 20 feet, cylinders should be separated by a wall with a fire-resistance rating of at least 30 minutes.

 Acetylene and liquefied fuel gascylinders should be stored with the valve end up. Acetylene storage areas must be well ventilated and should have no other compressed gases.

 All open flames are prohibited in gas storage areas.

 Cylinder Storage Room Guidelines:

 • Well ventilated to prevent the accumulation of explosive concentrations of gas.

 • No ignition sources.

 • Smoking prohibited, signage posted.

 • All permanent wiring in conduit.

 • Electric lights (portable and fixed) equipped with guards to prevent breakage.

 • Electric switches located outside the room.

**Transporting**

 Motor vehicle transport of cylinders shall only be done with vehicles equipped with racks or other means of securing the cylinders. A hand truck (dolly) shall be used for the transfer of compressed gas cylinders from one location of the jobsite to another.

 Cylinder transport precautions include:

 • Cylinders shall not be rolled or lifted by the valve or valve cap.

 • Cylinder valves will be shut off and valve caps in place during transit from location to location.

 • If a cylinder cap can not be removed, the cylinder will be returned to the supplier.

 • Cylinders that have been dropped during transit shall be taken out of service and returned to the supplier for inspection.

 • Cylinders will be securely supported at all times during transport.

**Materials of Trade**

**Definition:**

*49 CFR 171.8*

*Material of trade* means a hazardous material, other than a hazardous waste, that is carried on a motor vehicle—

(1) For the purpose of protecting the health and safety of the motor vehicle operator or passengers;

(2) For the purpose of supporting the operation or maintenance of a motor vehicle (including its auxiliary equipment); or

(3) By a private motor carrier (including vehicles operated by a rail carrier) in direct support of a principal

business that is other than transportation by motor vehicle.



So because the chemicals, refrigerants, gases, etc. qualify as materials of trade, we can transport them and

are compliant if we meet these requirements:

**§ 173.6 Materials of trade** [**exceptions**](https://www.law.cornell.edu/definitions/index.php?width=840&height=800&iframe=true&def_id=3c1be00c3cc02e13bc7322f960a0253b&term_occur=1&term_src=Title:49:Subtitle:B:Chapter:I:Subchapter:C:Part:173:Subpart:A:173.6)**.**

**(a)***Materials and amounts.* A [material of trade](https://www.law.cornell.edu/definitions/index.php?width=840&height=800&iframe=true&def_id=8909a400e9b5beb57c490453b9423bc4&term_occur=2&term_src=Title:49:Subtitle:B:Chapter:I:Subchapter:C:Part:173:Subpart:A:173.6) is limited to the following:

**(1)** A [Class](https://www.law.cornell.edu/definitions/index.php?width=840&height=800&iframe=true&def_id=2213de1fb4189ade29594c53d0205cfc&term_occur=1&term_src=Title:49:Subtitle:B:Chapter:I:Subchapter:C:Part:173:Subpart:A:173.6) 3, 8, 9, [Division](https://www.law.cornell.edu/definitions/index.php?width=840&height=800&iframe=true&def_id=2f81e462a47411105565e9cc45e9bbfe&term_occur=1&term_src=Title:49:Subtitle:B:Chapter:I:Subchapter:C:Part:173:Subpart:A:173.6) 4.1, 5.1, 5.2, 6.1, or [ORM](https://www.law.cornell.edu/definitions/index.php?width=840&height=800&iframe=true&def_id=6c9aa6f5551ce4aac9f707e5866cfbb2&term_occur=1&term_src=Title:49:Subtitle:B:Chapter:I:Subchapter:C:Part:173:Subpart:A:173.6)-D material contained in a [packaging](https://www.law.cornell.edu/definitions/index.php?width=840&height=800&iframe=true&def_id=83a453a0c107c9f6872bb4adbbcaa9cb&term_occur=1&term_src=Title:49:Subtitle:B:Chapter:I:Subchapter:C:Part:173:Subpart:A:173.6) having a gross mass or capacity not over -

**(i)** 0.5 kg (1 pound) or 0.5 L (1 pint) for a [Packing Group](https://www.law.cornell.edu/definitions/index.php?width=840&height=800&iframe=true&def_id=94561b89adcbc580292061e15fd9751d&term_occur=1&term_src=Title:49:Subtitle:B:Chapter:I:Subchapter:C:Part:173:Subpart:A:173.6) I material;

**(ii)** 30 kg (66 pounds) or 30 L (8 gallons) for a [Packing Group](https://www.law.cornell.edu/definitions/index.php?width=840&height=800&iframe=true&def_id=94561b89adcbc580292061e15fd9751d&term_occur=2&term_src=Title:49:Subtitle:B:Chapter:I:Subchapter:C:Part:173:Subpart:A:173.6) II, [Packing Group](https://www.law.cornell.edu/definitions/index.php?width=840&height=800&iframe=true&def_id=94561b89adcbc580292061e15fd9751d&term_occur=3&term_src=Title:49:Subtitle:B:Chapter:I:Subchapter:C:Part:173:Subpart:A:173.6) III, or [ORM](https://www.law.cornell.edu/definitions/index.php?width=840&height=800&iframe=true&def_id=6c9aa6f5551ce4aac9f707e5866cfbb2&term_occur=2&term_src=Title:49:Subtitle:B:Chapter:I:Subchapter:C:Part:173:Subpart:A:173.6)-D material;

**(iii)** 1500 L (400 gallons) for a diluted [mixture](https://www.law.cornell.edu/definitions/index.php?width=840&height=800&iframe=true&def_id=e675961eb603b221ff3a31c2bc615b8c&term_occur=1&term_src=Title:49:Subtitle:B:Chapter:I:Subchapter:C:Part:173:Subpart:A:173.6), not to exceed 2 percent concentration, of a [Class](https://www.law.cornell.edu/definitions/index.php?width=840&height=800&iframe=true&def_id=2213de1fb4189ade29594c53d0205cfc&term_occur=2&term_src=Title:49:Subtitle:B:Chapter:I:Subchapter:C:Part:173:Subpart:A:173.6) 9 material.

**(2)** A [Division](https://www.law.cornell.edu/definitions/index.php?width=840&height=800&iframe=true&def_id=2f81e462a47411105565e9cc45e9bbfe&term_occur=2&term_src=Title:49:Subtitle:B:Chapter:I:Subchapter:C:Part:173:Subpart:A:173.6) 2.1 or 2.2 material in a [cylinder](https://www.law.cornell.edu/definitions/index.php?width=840&height=800&iframe=true&def_id=866b39b612f337cb4be6c1a1ce6221cb&term_occur=1&term_src=Title:49:Subtitle:B:Chapter:I:Subchapter:C:Part:173:Subpart:A:173.6) with a gross weight not over 100 kg (220 pounds), in a Dewar flask meeting the requirements of [§ 173.320](https://www.law.cornell.edu/cfr/text/49/173.320), or a permanently mounted tank manufactured to the ASME Code of not more than 70 gallon water capacity for a non-liquefied [Division](https://www.law.cornell.edu/definitions/index.php?width=840&height=800&iframe=true&def_id=2f81e462a47411105565e9cc45e9bbfe&term_occur=3&term_src=Title:49:Subtitle:B:Chapter:I:Subchapter:C:Part:173:Subpart:A:173.6) 2.2 material with no [subsidiary hazard](https://www.law.cornell.edu/definitions/index.php?width=840&height=800&iframe=true&def_id=87d15d3a725656a777590760f80c1c80&term_occur=1&term_src=Title:49:Subtitle:B:Chapter:I:Subchapter:C:Part:173:Subpart:A:173.6).

**(c)***Hazard communication.*

**(d)***Aggregate gross weight.* Except for a [material of trade](https://www.law.cornell.edu/definitions/index.php?width=840&height=800&iframe=true&def_id=8909a400e9b5beb57c490453b9423bc4&term_occur=4&term_src=Title:49:Subtitle:B:Chapter:I:Subchapter:C:Part:173:Subpart:A:173.6) authorized by [paragraph (a)(1)(iii)](https://www.law.cornell.edu/cfr/text/49/173.6#a_1_iii) of this section, the aggregate gross weight of all materials of trade on a [motor vehicle](https://www.law.cornell.edu/definitions/index.php?width=840&height=800&iframe=true&def_id=1a87dcb6d74dc77e6c71bf47be6ced0a&term_occur=3&term_src=Title:49:Subtitle:B:Chapter:I:Subchapter:C:Part:173:Subpart:A:173.6) may not exceed 200 kg (440 pounds).

**Safe Handling and Usage Guidelines**

 Serious accidents can result from the misuse, abuse, or mishandling of compressed gas cylinders. Employees assigned to the handling of cylinders under pressure should follow general safe handling guidelines:

 •Cylinders must never be dragged, pushed, or pulled across the floor.

 •Transport cylinders weighing more than a total of 40 pounds (18.2 kg) on a hand or motorized truck, securing them from falling.

 •Keep the cylinders clean and protect them from cuts or abrasions.

 •Where cylinders must be handled by a crane or derrick, carry them in a cradle or suitable platform and take extreme care that they are not dropped or bumped.

 •Do not use slings to hoist cylinders.

 •Do not drop cylinders or allow them to strike each other violently.

 •Do not use cylinders for rollers, supports, or any purpose other than to contain gas.

 •Do not tamper with safety devices in valves or on cylinders.

 •Clearly write EMPTY in chalk on empty cylinders that are to be returned to the vendor.

 •Close cylinder valves and replace valve protection caps, if the cylinder is designed to accept a cap.

 •Only operate valves as designed, such as by hand, with the appropriate tool or as the manufacturer recommends.

 •Always consider cylinders to be full and handle them with corresponding care.

 •Securely support compressed gas cylinders at all times. Cylinders must not be left "free-standing" at any time.