

August 20, 2012



U.S. Department
of Transportation

East Building, PHH - 30
1200 New Jersey Avenue, Southeast
Washington, D.C. 20590

**Pipeline and Hazardous
Materials Safety Administration**

DOT-SP 14399
(SIXTH REVISION)

EXPIRATION DATE: July 31, 2016

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. GRANTEE: Gas Cylinder Technologies Inc.
Lakeshore, Ontario, Canada
(U.S. Agent: Pressure Vessel Technologies Inc.,
Warren, MI)
2. PURPOSE AND LIMITATIONS:
 - a. This special permit authorizes the manufacture, marking, sale and use of non-DOT specification cylinders conforming to all regulations applicable to a DOT Specification 39 cylinder, except as specified herein, for the transportation in commerce of the materials authorized by this special permit. This special permit provides no relief from the Hazardous Materials Regulations (HMR) other than as specifically stated herein. The most recent revision supersedes all previous revisions.
 - b. The safety analyses performed in development of this special permit only considered the hazards and risks associated with transportation in commerce. The safety analyses did not consider the hazards and risks associated with consumer use, use as a component of a transport vehicle or other device, or other uses not associated with transportation in commerce.
3. REGULATORY SYSTEM AFFECTED: 49 CFR Parts 106, 107 and 171-180.
4. REGULATIONS FROM WHICH EXEMPTED: 49 CFR §§ 173.301(a)(1), 173.301(a)(2), and 173.302a(a)(1) in that a non-DOT specification cylinder is not authorized; § 173.301(f)(1) and 173.302(f)(2) in that pressure relief devices must be

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sized and set in accordance with CGA S-1.1; and § 173.302(f)(1) in that a non-specification cylinder is not authorized for the transportation of compressed oxygen aboard an aircraft, except as prescribed herein.

5. BASIS: This special permit is based on the application of Gas Cylinder Technologies Inc. dated November 17, 2008, submitted in accordance with § 107.109 and additional information dated August 16, 2012.
6. HAZARDOUS MATERIALS (49 CFR § 172.101):

Hazardous Material Description			
Proper Shipping Name	Hazard Class/ Division	Identification Number	Packing Group
Oxygen, compressed	2.2	UN1072	N/A
Non-toxic, non-liquefied compressed gases authorized in DOT 39 specification cylinders	2.2	As appropriate	N/A

7. SAFETY CONTROL MEASURES:

a. PACKAGING - Packaging prescribed are non-DOT, non-refillable, seamless steel cylinders made in accordance with the Gas Cylinder Technologies Inc. specification on file with the Office of Hazardous Materials Special Permits and Approvals (OHMSPA) and in conformance with §§ 178.35 and 178.65 except as follows:

§ 178.35(f) *Marking*.

Applies except that each cylinder must be durably marked "DOT-SP 14399" in lieu of "DOT-39" followed by the service pressure.

§ 178.65(a) *Type, size and service pressure*. Seamless steel cylinder formed by the deep drawing technique or seamless tube with the following characteristics:

- Maximum service pressure of 4,500 psig;
- Maximum water capacity of 90 cubic inches; and

- Maximum external diameter of 4.00 inches.

§ 178.65(b) *Materials* - Seamless steel as specified below:

CHEMICAL COMPOSITION IN WEIGHT PERCENTAGE

Element	Ladle Analysis		Check Analysis Tolerance Under/Over
	Grade 1	Grade 2	
Carbon	0.31/0.35	0.25/0.35	0.01/0.02
Manganese	0.60/0.90	0.40/0.90	0.03/0.03
Phosphorus	0.025 max.	0.015 max.	-0.01
Sulfur	0.010 max.	0.010 max.	-0.01
Silicon	0.15/0.35	0.15/0.35	0.02/0.03
Chromium	0.80/1.10	0.80/1.10	0.03/0.03
Molybdenum	0.15/0.25	0.15/0.25	0.01/0.01
Vanadium	0.07/0.10	0.02 max.	0.01/0.01

§ 178.65(d) Wall thickness - The minimum wall thickness must be such that maximum wall stress at test pressure is less than yield strength of the steel.

- Test pressure must be greater than or equal to 1.25 times marked service pressure;

§ 178.65(e) *Openings and attachments.*

(1) * * *

(2) Diameter of each openings must be less than or equal to 35% of the outside diameter of the cylinder.

§ 178.65(f) *Pressure test.*

(1) Leak testing is not required.

(2) One cylinder taken from each lot must be hydrostatically tested to destruction. Test pressure must be greater than or equal to 1.25 times marked service pressure.

(3) A "lot" means a group of cylinders successively produced and having the same:

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- Size and configuration;
- Specified material of construction;
- Process of manufacture;
- Equipment of manufacture and heat treatment; and
- Conditions of time, temperature and atmosphere during heat treatment.

In no case may the lot size exceed the production of one shift (not exceeding 10 hours).

§ 178.65(g) *Flattening test* - Only applies to prototype design qualification on each new cylinder design. Upon successful completion of the flattening test for each prototype design, the flattening test is not required for lot qualification.

(1), (2), and (3) * * *

(4) Cylinders and test rings may not crack when flattened so that the outer surfaces are not more than eight times wall thickness apart.

(5) * * *

b. OPERATIONAL CONTROLS:

(1) Cylinders must not be filled to a pressure exceeding the marked service pressure at 70°F.

(2) Cylinders must be shipped in strong outside packagings in accordance with § 173.301(a)(9).

(3) Cylinders must be equipped with a pressure relief device (PRD conforming to the requirements of CGA Pamphlet S1.1:2005 except following:

- (a) The rated burst pressure: The burst pressure of the PRD must be equal to 100% of the cylinder minimum design test pressure (t_{min}) with a tolerances of plus 5% to minus 10%;
- (b) The Flow rate (capacity) Calculation: The Flow rate must be calculated based on a 10 pounds water capacity.

8. SPECIAL PROVISIONS:

a. Prior to the initial shipment of cylinders made to any specific design, a prototype test report must be submitted to the Office of Hazardous Materials Special Permits and Approvals (OHMSPA). The report must include as a minimum: magnetic particle testing on the initial lot production (minimum of 100 cylinders), burst test results, burst mode and ratio of burst pressure to test pressure.

b. In accordance with the provisions of Paragraph (b) of § 173.22a, persons may use the packaging authorized by this special permit for the transportation of the hazardous materials specified in paragraph 6, only in conformance with the terms of this special permit.

c. A person who is not a holder of this special permit, but receives a package covered by this special permit, may reoffer it for transportation provided no modification or change is made to the package and it is offered for transportation in conformance with this special permit and the HMR.

d. A current copy of this special permit must be maintained at each facility where the package is offered or reoffered for transportation.

e. Each packaging manufactured under the authority of this special permit must be either (1) marked with the name of the manufacturer and location (city and state) of the facility at which it is manufactured or (2) marked with a registration symbol designated by the Office of Hazardous Materials Special Permits and Approvals for a specific manufacturing facility.

f. A current copy of this special permit must be maintained at each facility where the package is manufactured under this special permit. It must be made available to a DOT representative upon request.

9. MODES OF TRANSPORTATION AUTHORIZED: Motor vehicle, rail freight, cargo vessel, cargo aircraft only, and passenger-carrying aircraft.

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10. MODAL REQUIREMENTS: A current copy of this special permit must be carried aboard each cargo vessel, aircraft or motor vehicle used to transport packages covered by this special permit. The shipper must furnish a copy of this special permit to the air carrier before or at the time the shipment is tendered.

11. COMPLIANCE: Failure by a person to comply with any of the following may result in suspension or revocation of this special permit and penalties prescribed by the Federal hazardous materials transportation law, 49 U.S.C. 5101 et seq:
 - o All terms and conditions prescribed in this special permit and the Hazardous Materials Regulations, 49 CFR Parts 171-180.

 - o Persons operating under the terms of this special permit must comply with the security plan requirement in Subpart I of Part 172 of the HMR, when applicable.

 - o Registration required by § 107.601 et seq., when applicable.

Each "Hazmat employee", as defined in § 171.8, who performs a function subject to this special permit must receive training on the requirements and conditions of this special permit in addition to the training required by §§ 172.700 through 172.704.

No person may use or apply this special permit, including display of its number, when this special permit has expired or is otherwise no longer in effect.

Under Title VII of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU)—"The Hazardous Materials Safety and Security Reauthorization Act of 2005" (Pub. L. 109-59), 119 Stat. 1144 (August 10, 2005), amended the Federal hazardous materials transportation law by changing the term "exemption" to "special permit" and authorizes a special permit to be granted up to two years for new special permits and up to four years for renewals.

12. REPORTING REQUIREMENTS: Shipments or operations conducted under this special permit are subject to the Hazardous Materials Incident Reporting requirements specified in 49 CFR 171.15 - Immediate notice of certain hazardous materials incidents, and 171.16 - Detailed hazardous materials incident reports. In addition, the grantee(s) of this special permit must notify the Associate Administrator for Hazardous Materials Safety, in writing, of any incident involving a package, shipment or operation conducted under terms of this special permit.

Issued in Washington, D.C.:



for Dr. Magdy El-Sibaie
Associate Administrator for Hazardous Materials Safety

Address all inquiries to: Associate Administrator for Hazardous Materials Safety, Pipeline and Hazardous Material Safety Administration, Department of Transportation, Washington, D.C. 20590. Attention: PHH-31.

Copies of this special permit may be obtained by accessing the Hazardous Materials Safety Homepage at http://hazmat.dot.gov/sp_app/special_permits/spec_perm_index.htm Photo reproductions and legible reductions of this special permit are permitted. Any alteration of this special permit is prohibited.

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