

February 25, 2015



U.S. Department
of Transportation

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

**Pipeline and Hazardous
Materials Safety Administration**

DOT-SP 9001
(FIFTEENTH REVISION)

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. GRANTEE: (See individual authorization letter)
2. PURPOSE AND LIMITATIONS:
 - a. This special permit authorizes the transportation in commerce of a non-DOT specification cylinder conforming with all regulations applicable to a DOT 3T Specification cylinder, except as provided 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.
 - c. Unless otherwise stated herein, this special permit consists of the special permit authorization letter issued to the grantee together with this document.
3. REGULATORY SYSTEM AFFECTED: 49 CFR Parts 106, 107 and 171-180.
4. REGULATIONS FROM WHICH EXEMPTED: 49 CFR §§ 173.301a, 173.302a, and 173.304a, in that non-DOT specification cylinders are not authorized, except as provided herein.
5. BASIS: This special permit is based on the Pipeline and Hazardous Materials Safety Administration's (PHMSA) editorial review under § 107.121 initiated on February 24, 2015.

February 25, 2015

6. HAZARDOUS MATERIALS (49 CFR § 172.101):

| Hazardous Materials Description | | | |
|--|-----------------------------------|--|--------------------------|
| Proper Shipping Name | Hazard Class/ Division | Identi- fication Number | Packing Group |
| Air, compressed | 2.2 | UN1002 | N/A |
| Argon, compressed | 2.2 | UN1006 | N/A |
| Boron trifluoride, compressed | 2.3 | UN1008 | N/A |
| Carbon dioxide | 2.2 | UN1013 | N/A |
| Ethylene, compressed | 2.1 | UN1962 | N/A |
| Helium, compressed | 2.2 | UN1046 | N/A |
| Methane, compressed or Natural gas (with high methane content) | 2.1 | UN1971 | N/A |
| Neon, compressed | 2.2 | UN1065 | N/A |
| Nitrogen, compressed | 2.2 | UN1066 | N/A |
| Nitrous oxide | 2.2 | UN1070 | N/A |
| Oxygen, compressed | 2.2 | UN1072 | N/A |

7. SAFETY CONTROL MEASURES:

a. PACKAGING - Prescribed packaging is a non-DOT specification steel cylinder made in compliance with Drawings 47482P dated January 11, 1983 and 47593P dated August 9, 1983 on file with the Office of Hazardous Materials Special Permits and Approvals (OHMSPA), and DOT 3T (§§ 178.35 and 178.45) except as follows:

§ 178.35(f) Markings. Each cylinder must be marked "DOT-SP 9001" in lieu of "DOT 3T".

§ 178.45(a) *Type, size and service pressure*

February 25, 2015

Each cylinder must be of seamless construction with one end concave to pressure, the bottom to be convex to pressure. The maximum water capacity is 120 pounds with a minimum service pressure of 1,800 p.s.i.

§ 178.45(b) *Material, steel.*

The provisions remain the same except the steel analysis must conform to the following:

ANALYSIS TOLERANCES

| <u>Element</u> (percent) | <u>Ladle analysis</u> | <u>Check Analysis</u> | |
|--------------------------|-----------------------|-----------------------|-------------|
| | | <u>Under</u> | <u>Over</u> |
| Carbon..... | 0.33 to 0.40 | 0.03 | 0.04 |
| Manganese..... | 0.60 to 1.05 | 0.04 | 0.04 |
| Phosphorus (max)... | 0.015 | | 0.01 |
| Sulfur (max)..... | 0.015 | | 0.003 |
| Silicon..... | 0.15 to 0.35 | 0.02 | 0.03 |
| Chromium..... | 0.80 to 1.15 | 0.05 | 0.05 |
| Molybdenum..... | 0.15 to 0.25 | 0.02 | 0.02 |

§ 178.45(c) *Manufacture*

Add the following:

(6) The thickness of the bottoms of the cylinders must be at least two times the minimum wall thickness of the cylindrical shell; such bottom thickness to be measured within an area bounded by a line representing the points of contact between the cylinder and floor when the cylinder is in a vertical position.

(7) Each new design and any significant change to any acceptable design must be qualified for production by testing prototype samples as follows:

(a) Three samples must be subjected to 100,000 pressure reversal cycles between zero and service pressure or 10,000 pressure reversal cycles between zero and test pressure, at a rate not in excess of 10 cycles per minute without failure.

(b) Three samples must be pressurized to destruction and failure must not occur at less than 2.5 times the marked cylinder service pressure. Each cylinder must remain in one piece.

Failure must initiate in the cylinder sidewall in a longitudinal direction. Rate of pressurization must not exceed 200 psi per second.

(8) In this specification "significant change" means a 10 percent or greater change in cylinder wall thickness, service pressure, or diameter; a 30 percent or greater change in water capacity or base thickness; any change in material; over 100 percent increase in size of openings; or any change in the number of openings.

(9) After all shell forming operations and prior to closing in, the cylindrical section of each shell must be examined in accordance with ASTM Standard A-388-80 using the angle beam technique. The equipment used must be calibrated to detect a notch equal to five percent of the design minimum wall thickness. Any discontinuity indication greater than that produced by the five percent notch must be cause for rejection of the shell unless the discontinuity is repaired within the requirements of this specification.

§ 178.45(d) *Wall thickness*

The minimum wall thickness must be such that the wall stress at the minimum specified test pressure does not exceed 67 percent of the minimum tensile strength of the steel as determined by the physical tests required in paragraphs (j) and (k).

A wall stress of more than 90,500 p.s.i. is not permitted.

In no case may wall thickness be less than 0.210 inch.

(1) * * *

(2) Does not apply.

§ 178.45(h) *Ultrasonic examination*

Add the following:

Wet magnetic particle examination for detecting the presence of quench cracks may be substituted for the ultrasonic examination prescribed in this section. When magnetic particle examination is performed it must be done after the hydrostatic test on the cylindrical section of each cylinder in accordance with ASTM Standard E 709-80. Any cylinder found to have a quenching crack must be rejected and may not be requalified.

b. TESTING - Each cylinder must be requalified for use in accordance with § 180.205 as prescribed for DOT 3T cylinders.

c. OPERATIONAL CONTROLS -

(1) These cylinders may not be used for carriage of gases that would cause hydrogen embrittlement of the steel.

(2) Filling limits specified in § 173.302a(b) are authorized.

(3) The following provisions apply to the transportation of methane:

(i) Each cylinder must be filled only with non-corrosive compressed natural gas (scrubbed to remove acid gases) and may not contain any liquefied gas. At any time the cylinder may not contain gas having more than:

(A) 0.5 lbs. of water per million cubic feet at standard temperature and pressure (STP) (60°F, 30 inches Hg).

(B) 0.1 grain of hydrogen sulfide per 100 cubic feet at STP as determined by ASTM D 2385-76 Test for Hydrogen Sulfide and Mercaptan Sulfur in Natural Gas (Cadmium-Sulfate Iodometric Titration Method).

(C) Total Soluble Sulfides other than H₂S or soluble sulfides must be less than 0.1 grain per 100 cubic feet at STP.

(D) One percent by volume of oxygen.

(E) Three percent by volume of carbon dioxide.

(F) Four percent total (including but not limited to items (D) & (E) of this paragraph) by volume of all non-hydrocarbon gases (excluding nitrogen).

(ii) The shipper is responsible for establishing procedures to determine the composition and impurity level of the gas at each facility used for filling the cylinders, and to verify compliance with the requirements of this special permit. Records of the gas composition and impurity levels must be maintained for three years.

(iii) Cylinders that become contaminated with H₂S or soluble sulfides must be condemned.

(iv) During any unloading operation each cylinder must be inclined to an angle that lowers the centerline of the cylinder at the discharge end to a point lower than any portion of the opposite end of the cylinder.

d. No new manufacture is authorized after June 30, 2007.

8. SPECIAL PROVISIONS:

a. In accordance with the provisions of Paragraph (a) 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.

February 25, 2015

b. 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 modifications or changes are made to the package and it is offered for transportation in conformance with this special permit and the HMR. If a requalifier does not fill a cylinder with hazardous material for transportation they do not need to hold party status to the special permit.

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

d. Each packaging manufactured under the authority of this special permit must be marked with a registration symbol designated by the Office of Hazardous Materials Special Permits and Approvals for a specific manufacturing facility.

e. 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.

f. Reports:

(1) Prior to the initial shipment of cylinders made to any specific design, a report of test results specified in § 178.45(n) must be submitted to OHMSPA.

(2) The manufacturer of the cylinder under this specification must retain the test reports required by this specification for 15 years from the original test date on the cylinder.

g. Cylinders made under this special permit may be transported in an upright position.

h. Transportation of Division 2.1 (flammable gases) and Division 2.3 (gases which are poisonous by inhalation) are not authorized aboard cargo vessel or aircraft unless specifically authorized in the Hazardous Materials Table (§ 172.101).

i. Transportation of oxygen is only authorized by aircraft when in accordance with § 175.501.

9. MODES OF TRANSPORTATION AUTHORIZED: Motor vehicle, rail

February 25, 2015

freight, cargo vessel and cargo aircraft only.

10. MODAL REQUIREMENTS: A current copy of this special permit must be carried aboard each cargo vessel or aircraft used to transport packages covered by this special permit. The shipper must furnish a current 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.

February 25, 2015

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 or 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, U.S. Department of Transportation, East Building PHH-30, 1200 New Jersey Avenue, Southeast, Washington, D.C. 20590.

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.

PO: MT/dl