

May 11, 2018



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 8009
(EIGHTEENTH REVISION)

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. GRANTEE: (See individual authorization letter)
2. PURPOSE AND LIMITATION:
 - a. This special permit authorizes the transportation in commerce of compressed natural gas (CNG) in a DOT Specification 3AAX cylinder made of 4130X steel. 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 § 173.302a(a)(4) in that the specific impurity levels are specified and § 178.37(k)(1) in that alternate heat treatment lot size is authorized; and § 178.37(k)(2)(i) in that alternative physical test method for batch acceptance is authorized.
5. BASIS: This special permit is based on the application of FIBA dated January 18, 2018 submitted in accordance with § 107.105 and the public proceeding thereon.

Tracking Number: 2018019162

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6. HAZARDOUS MATERIALS (49 CFR § 172.101):

| Hazardous Materials Description | | | |
|---|-------------------------------|------------------------------|----------------------|
| Proper Shipping Name | Hazard Class/ Division | Identification Number | Packing Group |
| Methane, compressed or Natural gas, compressed (<i>with high methane content</i>) | 2.1 | UN1971 | N/A |

7. SAFETY CONTROL MEASURES:

a. PACKAGING: Prescribed packaging is a DOT Specification 3AAX cylinder constructed in conformance with DOT 3AAX specification (§§ 178.35 and 178.37) except as follows:

(1) The marked service pressure must be at least 1800 psig but not over 4000 psig.

(2) Cylinders must be constructed of 4130X steel as specified in § 178.37(b) except that for cylinders with a marked service pressure greater than 2800 psig, the percent of sulphur and phosphorus contents may not exceed 0.015 and 0.024 respectively.

(3) The ultimate tensile strength determined in accordance with § 178.37(k) may not exceed 126,000 psi.

(4) The yield strength to ultimate strength ratio may not exceed 86%.

(5) Requirements for Tensile and Hardness Tests.

(i) When the cylinders are heat treated in a batch furnace, two tensile specimens must be tested from one of the cylinders or a test ring from each batch. The lot size represented by these tests may not exceed 200 cylinders.

(ii) When the cylinders are heat treated in a continuous furnace, two tensile specimens must be tested from one of the cylinders or a test ring from a quantity of up to 30 cylinders (tubes) or up to four hours of production whichever is

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greater. In no case, may a test lot based on this production period exceed 200 cylinders.

(iii) Each specimen for the tensile test may be taken from the sidewall of a cylinder or from a ring which has been heat treated with the finished cylinder of which the specimen must be representative. The axis of the specimen must be parallel to the axis of the cylinder. Each cylinder or ring specimen for test must be of the same diameter, thickness, and metal as the finished cylinder they represent. A test ring must be at least 24 inches long with ends covered during the heat treatment process to simulate the heat treatment process of the finished cylinder it represents.

(iv) A test cylinder or test ring need represent only one of the heats in a furnace batch provided the other heats in the batch have previously been tested and have passed the tests and that such tests do not represent more than 200 cylinders from any one heat.

(v) After the final heat treatment, each cylinder must be hardness tested on the cylindrical surface. The hardness must not exceed HB 269. When the result of a hardness test exceeds the maximum permitted, two or more retests may be made; however, the hardness number obtained in each retest may not exceed the maximum permitted.

(vi) The tensile test specimen and test results must conform to the requirements specified in § 178.37(k)(2)(i) and § 178.37(l) respectively. Alternatively, a machined round proportional tensile test specimen in accordance with ISO 11120 standard may be used for batch acceptance in lieu of the rectangular cross-section specimen specified in § 178.37(k)(2)(i). The minimum acceptable elongation requirement for round tensile test specimen is 16 percent.

(vii) When the test results do not conform to the requirements specified, the cylinders represented by the tests may be reheat treated and the tests repeated.

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(6) Ultrasonic Examination. After the hydrostatic test, the cylindrical section of each cylinder must be examined in accordance with ASTM Standard A-388-95. CP Industries may increase the ultrasonic scanning speed in accordance with the procedure described herein and in Appendix 1 of CP Industries December 1, 1998 application for modification of DOT-SP 8009, on file with the Office of Hazardous Materials Safety Approvals and Permits Division (OHMSAPD). The ultrasonic examination scanning speed must be less than or equal to the speed at which an acceptable calibration was made. The equipment used must be calibrated by angle beam technique 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 cylinder unless the discontinuity is repaired in accordance with § 178.37.

(7) Drain tube: Each discharge end of the cylinder must be equipped with an internal drain tube.

b. REQUALIFICATION: Each cylinder must be requalified as specified for a DOT-3AAX cylinder in accordance with § 180.209.

c. OPERATIONAL CONTROLS:

(1) Each cylinder must be filled only with non-corrosive compressed natural gas (scrubbed to remove acid gases) and may not contain any liquefied gas. The gas contained in the cylinder may not have more than:

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

(ii) 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).

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

(iv) One percent by volume of oxygen.

(v) Three percent by volume of carbon dioxide.

(vi) Four percent total (including but not limited to items (iv) and (v) of this paragraph) by volume of all non-hydrocarbon gases (excluding nitrogen).

(2) 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.

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

(4) 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.

(5) The cylinder may be manifolded in accordance with § 173.301(g) and securely mounted on a motor vehicle.

8. SPECIAL PROVISIONS:

a. A person who is not a holder of this special permit who 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 reoffered for transportation in conformance with this special permit and the HMR.

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

c. MARKING:

(1) Each cylinder must be marked CNG immediately following and on the same line of the required DOT specification marking, example: DOT-3AAX2400 CNG to signify the cylinder is suitable for compressed natural gas service when manufactured, inspected, tested and used as prescribed in this special permit. For a

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cylinder made prior to the effective date of this special permit the CNG may be marked only on a qualified cylinder. Such marking must be made no later than the time of the next required retest.

(2) Each motor vehicle (tube trailer) must be plainly marked on the right side near the front, in letters at least 2 inches high on a contrasting background, "DOT-SP 8009".

9. MODES OF TRANSPORTATION AUTHORIZED: Motor vehicle, rail freight and cargo vessel.
10. MODAL REQUIREMENTS: A current copy of this special permit must be carried aboard each motor vehicle or cargo vessel used to transport packages covered by this special permit.
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.

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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 William Schoonover
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: Andrew Eckenrode