



U.S. Department  
of Transportation  
**Research and  
Special Programs  
Administration**

DOT-E 8009  
(THIRTEENTH REVISION)

400 Seventh St., S.W.  
Washington, D.C. 20590

**JUL 25 2003**

**EXPIRATION DATE: June 30, 2005**

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. **GRANTEE:** FIBA Technologies, Inc.  
Westboro, MA

(See Appendix A to this document for a list of additional grantees)

2. **PURPOSE AND LIMITATION:**

a. This exemption authorizes the transportation in commerce of compressed natural gas (CNG) in a DOT Specification 3AAX cylinder made of 4130X steel. This exemption provides no relief from the Hazardous Materials Regulations (HMR) other than as specifically stated herein.

b. The safety analyses performed in development of this exemption only considered the hazards and risks associated with transportation in commerce.

3. **REGULATORY SYSTEM AFFECTED:** 49 CFR Parts 106, 107 and 171-180.
4. **REGULATIONS FROM WHICH EXEMPTED:** 49 CFR § 173.302a(a)(4) in that the specific impurity levels are specified.
5. **BASIS:** This exemption is based on the application of FIBA Technologies dated July 2, 2003, submitted in accordance with § 107.109.
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 (with high methane content) | 2.1                   | UN1971                | N/A           |

JUL 25 2003

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 may 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 may be tested from one of the cylinders or a test ring from each four hours or less of production. The test lot based on this production period may not 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 so as to simulate the heat treatment process of the finished cylinder it represents.

JUL 25 2003

(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 test results must conform to the requirements specified in § 178.37(1), paragraph 5(v) above, and the additional requirements of this exemption.

(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.

(6) Ultrasonic Examination. After the hydrostatic test, the cylindrical section of each cylinder must be examined in accordance with of ASTM Standard A-388-95. CP Industries may increase the ultrasonic scanning speed in accordance with the procedure described herein and Appendix A of CP Industries, on file with the Office of Hazardous Materials Exemptions and Approvals (OHMEA). 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.

JUL 25 2003

b. TESTING - 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 H<sub>2</sub>S 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 (4) & (5) 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 a compliance to the requirements of this exemption. Records of the gas composition and impurity levels must be maintained for three years.

(3) Cylinders that become contaminated with H<sub>2</sub>S or soluble sulfides must be condemned.

JUL 25 2003

(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(f) and securely mounted on a motor vehicle.

8. SPECIAL PROVISIONS:

a. A person who is not a holder of this exemption who receives a package covered by this exemption 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 exemption and the HMR.

b. A current copy of this exemption 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 exemption. For a cylinder made prior to the effective date of this exemption 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 must be plainly marked on the right side near the front, in letters at least 2 inches high on a contrasting background, "DOT-E 8009"

9. MODES OF TRANSPORTATION AUTHORIZED: Motor vehicle.

10. MODAL REQUIREMENTS: A current copy of this exemption must be carried aboard each motor vehicle used to transport packages covered by this exemption.

JUL 25 2003

11. COMPLIANCE: Failure by a person to comply with any of the following may result in suspension or revocation of this exemption 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 exemption and the Hazardous Materials Regulations, 49 CFR Parts 171-180.
- 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 exemption must receive training on the requirements and conditions of this exemption in addition to the training required by §§ 172.700 through 172.704.

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

12. REPORTING REQUIREMENTS: The carrier is required to report any incident involving loss of packaging contents or packaging failure to the Associate Administrator for Hazardous Materials Safety (AAHMS) as soon as practicable. (Sections 171.15 and 171.16 apply to any activity undertaken under the authority of this exemption.) In addition, the holder(s) of this exemption must inform the AAHMS, in writing, of any incident involving the package and shipments made under the terms of this exemption.

Issued in Washington, D.C.:

*Robert A. McGuire*  
Robert A. McGuire  
Associate Administrator for  
Hazardous Materials Safety

JUL 25 2003

(DATE)

**JUL 25 2003**

Address all inquiries to: Associate Administrator for Hazardous Materials Safety, Research and Special Programs Administration, Department of Transportation, Washington, D.C. 20590.  
Attention: DHM-31.

Copies of this exemption may be obtained by accessing the Hazardous Materials Safety Homepage at <http://hazmat.dot.gov/exemptions> Photo reproductions and legible reductions of this exemption are permitted. Any alteration of this exemption is prohibited.

PO: KFW/sln

**AUG 1 0 2004**

The following are hereby granted party status to this exemption based on their application(s) submitted in accordance with § 107.107 or § 107.109, as appropriate:

| Company Name<br>City/State  | Application<br>Date | Issue<br>Date       | Expiration<br>Date |
|---|---------------------|---------------------|--------------------|
| Alliance Energy, LLC.<br>Jamesville, NY   | Oct 16,<br>2003     | Oct 16,<br>2003     | Jun 30,<br>2005    |
| CP Industries, Inc.<br>McKeesport, PA   | Aug 22,<br>2003     | Sep 11,<br>2003     | Jun 30,<br>2005    |
| CenterPoint Energy<br>Alternative Fuels<br>Houston, TX                                      | Aug 15,<br>2003     | Sep 11,<br>2003     | Jun 30,<br>2005    |
| Columbia Gas<br>Transmission Corporation<br>Charleston, WV                                  | Jul 23,<br>2004     | <b>AUG 1 0 2004</b> | Jun 30,<br>2005    |
| FML Gas Technologies<br>Houston, TX   | Apr 1, 2004         | May 7,<br>2004      | Jun 30,<br>2005    |
| Marlin Gas Transport,<br>Inc.<br>New Port Richey, FL  | Jul 25,<br>2003     | Aug 12,<br>2003     | Jun 30,<br>2005    |
| Motorfuelers, Inc.<br>Clearwater, FL  | Jul 15,<br>2003     | Aug 12,<br>2003     | Jun 30,<br>2005    |
| NK Co., Ltd.<br>Saha-Ku, Busan, KR<br>(U.S. Agent: Queen<br>Cylinder Company<br>London, OH) | Jul 23,<br>2003     | Jul 25,<br>2003     | Jun 30,<br>2005    |
| Sonoma County Transit<br>Santa Rosa, CA   | Aug 28,<br>2003     | Sep 11,<br>2003     | Jun 30,<br>2005    |
| Texas Gas Transmission<br>Owensboro, KY<br>(Former Grantee:<br>Williams/Texas Gas)          | Jul 01,<br>2003     | Jul 25,<br>2003     | Jun 30,<br>2005    |
| Weldship Corporation<br>Bethlehem, PA   | Sep 16,<br>2003     | Sep 24,<br>2003     | Jun 30,<br>2005    |



Robert A. McGuire  
Associate Administrator for  
Hazardous Materials Safety