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

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

SEP 3 0 2003

DOT-E 13230
FIRST REVISION

EXPIRATION DATE: August 31, 2005

(FOR RENEWAL, SEE 49 CFR § 107.109)

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

2. PURPOSE AND LIMITATIONS:

a. This exemption authorizes the manufacture, mark, sale and use of non-DOT specification cylinders conforming with all regulations applicable to a DOT Specification 3AA or 3AAX cylinder except as specified herein, for the transportation in commerce of the materials authorized by this exemption. 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 §§ 173.302(a) and 173.304(a) in that non-DOT specification cylinders are not authorized except as specified herein.

5. BASIS: This exemption is based on the application of FIBA Technologies, Inc. dated August 1, 2003, submitted in accordance with § 107.105 and public proceeding thereon.

6. HAZARDOUS MATERIALS (49 CFR § 172.101):

Hazardous Material Description			
Proper Shipping Name	**Hazard Class/ Division**	**Identi-fication Number**	**Packing Group**
Gases or mixtures of gases authorized in the HMR to be shipped in DOT-3AA and DOT-3AAX specification cylinders *	2.1 2.2 2.3	Various	N/A

* For Compressed natural gas see paragraph 7.c.(2).

7. SAFETY CONTROL MEASURES:

a. PACKAGING - Packaging prescribed is a non-DOT specification steel cylinder manufactured in stages by both domestic and non-domestic entities and stamped DOT-3AA or DOT-3AAX. The non-domestic entity (Dalmine) manufactured the pipe, formed the ends and heat-treated the semi-finished cylinder. Each cylinder must be in conformance with §§ 178.35 and § 178.37 as applicable, except as follows:

§ 178.35(c) *Duties of inspector.* The inspector was not present in the non-domestic manufacturing facility during the first phase of the cylinder's manufacture.

§ 178.35(f)(1)(i) Each cylinder must be stamped "DOT-E 13230" in lieu of "DOT-3AA or DOT-3AAX" as appropriate.

b. TESTING - Each cylinder must be requalified as specified for a DOT-3AA or DOT-3AAX cylinder in § 180.209.

c. OPERATIONAL CONTROLS -

(1) Cylinders may be manifolded in accordance with § 173.301(g) and securely mounted on a motor vehicle.

(2) For the transportation of compressed natural gas the following additional requirements apply:

(i) CYLINDERS -

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

(B) Each cylinder 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 content may not exceed 0.015% and 0.024% respectively.

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

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

(E) Requirements for Tensile and Hardness Tests.

(1) 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.

(2) 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.

(3) 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.

(4) 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.

(5) 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.

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

(7) 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.

(F) Ultrasonic Examination. After the hydrostatic test, the cylindrical section of each cylinder must be examined in accordance with ASTM Standard A-388-95. 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.

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

(ii) GAS SPECIFICATION -

(A) 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:

(1) 0.5 lbs. of water per million cubic feet at standard temperature and pressure (STP) (60°F, 30 inches Hg).

(2) 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).

(3) Total Soluble Sulfides other than H_2S or soluble sulfides must be less than 0.1 grain per 100 cubic feet at STP.

(4) One percent by volume of oxygen.

(5) Three percent by volume of carbon dioxide.

(6) Four percent total (including but not limited to items (4) & (5) of this paragraph) by volume of all non-hydrocarbon gases (excluding nitrogen).

(B) 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 exemption. Records of the gas composition and impurity levels must be maintained for three years.

(C) Cylinders that become contaminated with H_2S or soluble sulfides must be condemned.

(D) 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.

8. SPECIAL PROVISIONS:

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

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

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

d. Each packaging manufactured under the authority of this exemption 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 Exemptions and Approvals for a specific manufacturing facility.

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

f. MARKING -

(1) Each cylinder not stamped "DOT-E 13230" at the time of manufacture as specified in paragraph 7.a. must be stamped "DOT-E 13230" at the time of the next requalification. No cylinder described in paragraph 8.g. of this exemption may bear a DOT-Specification

mark (ie. DOT-3AA) after it's next requalification. The DOT specification mark must be removed or obliterated.

(2) Each cylinder used for natural gas must be marked CNG immediately following and on the same line of the required DOT specification marking, example: DOT-E 13230 CNG to signify the cylinder is suitable for compressed natural gas service when manufactured, inspected, tested and used as prescribed in this exemption.

(3) Each motor vehicle which contains cylinders manifolded in accordance with § 173.301(g) must be plainly marked on the curb side near the front, in letters at least 2 inches high on a contrasting background, "DOT-E 13230".

g. The manufacture and use of the cylinders authorized under this exemption is limited to cylinders bearing the serials numbers provided by FIBA Technologies, Inc. and on file with the Office of Hazardous Materials Exemptions and Approvals.

9. MODES OF TRANSPORTATION AUTHORIZED: Motor vehicle, rail freight, and cargo vessel.

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

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:

- All terms and conditions prescribed in this exemption and the Hazardous Materials Regulations, Parts 171-180.
- 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 also inform the AAHMS, in writing, as soon as practicable of any incidents involving the package and shipments made under this exemption.

Issued in Washington, D.C.

Robert A. McGuire
FR Associate Administrator for
Hazardous Materials Safety

SEP 3 0 2003
(DATE)

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: SStaniszewski/CHHochman/dl