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

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

OCT 2 8 2003

DOT-E 10970
(SIXTH REVISION)

EXPIRATION DATE: September 30, 2005

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. GRANTEE: Luxfer Gas Cylinders
Riverside, CA

2. PURPOSE AND LIMITATION:

a. This exemption authorizes the manufacture, mark, sale and use of non-DOT specification fiber reinforced plastic (FRP) full composite (FC) cylinders for the transportation in commerce of certain compressed gases, and 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)(1), 173.304a(a), (d), and 175.3 in that a non-DOT specification cylinder is not authorized, except as specified herein.

5. BASIS: This exemption is based on the application of Luxfer Gas Cylinders dated September 30, 2003, submitted in accordance with § 107.109.

6. HAZARDOUS MATERIALS (49 CFR § 172.101):

Proper Shipping Name/ Hazardous Materials Description	**Hazard Class/ Division**	**Identi-fication Number**	**Packing Group**
Air compressed (containing up to 39% by volume oxygen	2.2	UN 1002	N/A
Carbon dioxide	2.2	UN 1013	N/A
Helium, compressed	2.2	UN 1046	N/A
Methane, compressed	2.1	UN 1971	N/A
Nitrogen, compressed	2.2	UN 1066	N/A
Oxygen, compressed	2.2	UN 1072	N/A

7. SAFETY CONTROL MEASURES:

a. PACKAGING: Prescribed packaging is a non-DOT specification fiber reinforced plastic (FRP) full composite (FC) aluminum cylinder made in conformance with the following:

(i) Luxfer USA's design drawing C-1060-30T69-A4A dated 6-33-92, and the report of Design Qualification Tests contained on file with the Office of Hazardous Materials Exemptions and Approvals (OHMEA), and

(ii) DOT FRP-1 Standard, Revision 2, dated February 15, 1987, (§ 178.AA), except as follows:

§ 178.AA-2 Type, size and service pressure.

Type 3FC cylinder consisting of resin impregnated continuous filament windings in helical and circumferential directions over a seamless aluminum liner made in compliance with § 178.AA-6; not over 200 pounds water capacity; and a service pressure of at least 900 psi but not greater than 5000 psi.

§ 178.AA-4 Duties of the Inspector.

(a) Verify conformance to the requirements in this exemption and to DOT FRP-1 Standard Revision 2, dated February 15, 1987.

(b) Verify conformance of aluminum liner with § 178.AA-6. Verify conformance of the filament and resin system components with the requirements specified in § 178.AA-5 of this exemption.

(c) thru (g) * * *.

§ 178.AA-5 Authorized Materials and Identification of materials.

(a) Aluminum liner must be 6061 alloy of T6 temper made from seamless drawn tubing.

(b) Filament material must be Kevlar 49™-8520 Denier, and glass hybrid construction. The filaments must be tested in accordance with ASTM-D2343-67(85) for strand strength and must have strand strength of 400,000 psi minimum. For roving denier determination, the filament material must be tested in accordance with ASTM D3317-74 and must be of at least 90% of the specified nominal value for the rovings. A manufacturer's certified test results for the rovings used in production may be used in lieu of testing.

(c) thru (e) * * *

b. MARKING: Each cylinder must be marked as prescribed in § 178.AA-15

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 marked with the 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. Cylinders may not be used for underwater breathing purposes.

g. Cylinders used in oxygen service must conform with § 173.302(b)(1) through (4).

h. Cylinder service life may not exceed 15 years from the date of manufacture as marked on the cylinder.

i. Each cylinder must be reinspected and hydrostatically retested every three years in accordance with §§ 180.205/180.209, as prescribed for DOT 3HT Specification cylinders, except that the rejection elastic expansion does not apply and the permanent volumetric expansion may not exceed 5 percent of the total volumetric expansion at test pressure. Retest dates must be stamped on the exposed metallic surface of the cylinder neck or marked on a label securely affixed to the cylinder and overcoated with epoxy near the original test date. Reheat treatment or repair of rejected cylinders is not authorized. When a hydrostatic retest is repeated as provided for in § 180.205(f)), only two such retests are permitted.

j. No person may perform inspection and testing of cylinders subject to this exemption unless that person (1) holds a current copy of this exemption at the location of such inspection and testing, and (2) complies with all the terms and conditions of this exemption. The marking of the retester's symbol on the cylinders certifies compliance with all of the terms and conditions of this exemption.

k. A cylinder that has been subjected to fire may not be returned to service.

l. Transportation of flammable gases is not authorized aboard cargo vessel or aircraft.

m. Transportation of oxygen is only authorized when in accordance with § 172.102(c)(2) Special Provision A52, and § 175.85(h) and (i).

n. Cylinders must be packaged in accordance with § 173.301(a)(9).

o. A current copy of this exemption, in its current status, must be maintained at each manufacturing facility at which this packaging is manufactured and must be made available to a DOT representative upon request.

p. The cylinders described in this exemption are authorized only for normal transportation as an article of commerce i.e., the movement of hazardous materials packages from consignor to consignee.

q. Filling requirements are subject to all terms contained in § 173.302a for DOT Specification 3AL cylinders.

9. MODES OF TRANSPORTATION AUTHORIZED: Motor vehicle, rail freight, cargo vessel, passenger-carrying aircraft, and cargo-aircraft only. (See paragraphs 8(l) and 8(m) of this exemption.)

10. MODAL REQUIREMENTS: A current copy of this exemption must be carried aboard each cargo vessel or aircraft used to transport packages covered by this exemption. The shipper must furnish a current copy of this exemption 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 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 the exemption has expired or it 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 incidents involving the package and shipments made under the terms of this exemption.

Issued in Washington, D.C.:

for Robert A. McGuire
Associate Administrator
for Hazardous Materials Safety

OCT 2 8 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: ALB