U.S. Department of Transportation

Research and Special Programs Administration

MAY 30 1995

DOT-E 11345

EXPIRATION DATE: March 31, 1997

(FOR RENEWAL, SEE 49 CFR 107.105.)

1. GRANTEE: Kaiser Compositek, Brea, California.

2. PURPOSE AND LIMITATIONS: This exemption authorizes the manufacture, mark and sale of a non-DOT specification, fiber reinforced plastic (FRP) full composite (FC) cylinder to be used for the transportation in commerce of certain Division 2.1 and Division 2.2 gases. This exemption provides no relief from any regulation other than as specifically stated herein.

3. REGULATORY SYSTEM AFFECTED: 49 CFR Parts 106, 107 and 171-180.

4. REGULATIONS FROM WHICH EXEMPTED: 49 CFR Sections 173.34, 173.302(a)(1) and 175.3, only in that the prescribed cylinder is not listed as an authorized packaging, and 178.46.

5. BASIS: This exemption is based on Kaiser Compositek's application dated October 24, 1994 submitted in accordance with 49 CFR 107.103 and the public proceeding thereon.

6. HAZARDOUS MATERIALS (49 CFR 172.101):

Hazardous materials description/ proper shipping name	Hazard Class or Division	Identification Number	Packing Group
Air, compressed (containing up to 39% by volume oxygen)	Division 2.2	UN1002	N/A
Oxygen, compressed	Division 2.2	UN1072	N/A
Carbon dioxide, compressed	Division 2.2	UN1013	N/A
Helium, compressed	Division 2.2	UN1046	N/A
Nitrogen, compressed	Division 2.2	UN1066	N/A
Hydrogen, compressed	Division 2.1	UN1049	N/A
Methane, compressed or Natural gas, compressed (with high Methane content)	Division 2.1	UN1971	N/A

7. PACKAGING(S) and SAFETY CONTROL MEASURES:

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

(i) Kaiser Compositek's drawing number C-01014, dated May 11, 1994; the information provided in the Report of Design Qualification Testing, dated October 10, 1994 on file with the Office of Hazardous Materials Exemptions and Approvals (OHMEA), and

(ii) DOT FRP-1 Standard (178.AA), dated July 1, 1981 and revised March 15, 1982 contained in Appendix A of this exemption, except as follows:

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

Type 3FC cylinder consisting of resin impregnated continuous filament windings in both longitudinal and circumferential directions over a seamless aluminum liner made in compliance with 178.AA-6(a); not over 100 pounds water capacity; and a service pressure of at least 900 psi but not greater than 4500 psi.

178.AA-4 Duties of the Inspector.

(a) Verify conformance with the requirements of this exemption and with DOT FRP-1 Standard dated July 1, 1981, Revised March 15, 1982.

(b) Verify conformance of aluminum liner with 178.AA-6(a). 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.

(b) Filament material must be commercial Type-S2 fiberglass. Filaments must be tested in accordance with ASTM D-2343 and have minimum strand strength of 400,000 psi.

(c) thru (e) * * *

178.AA-15 Marking.

(a) * * *

(b) Required markings are as follows:

(1) "DOT-E 11345" followed by the service pressure.

(2) thru (4) * * *

(c) * * *

b. SAFETY CONTROL MEASURES -

(i) Cylinders may not be used for underwater breathing purposes.

(ii) Cylinders used in oxygen service must conform with 49 CFR 173.302(a)(5)(i) through (a)(5)(iv).

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

(iv) Each cylinder must be reinspected and hydrostatically retested every three years in accordance with 49 CFR 173.34(e)(13), as prescribed for DOT Specification 3HT 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 49 CFR 173.34(e)(3), only two such retests are permitted.

(v) A cylinder that has been subjected to fire may not be returned to service.

(vi) Transportation of methane and hydrogen by cargo aircraft only is limited to 150 kilograms (330 pounds) and is forbidden for shipment by passenger air.

(vii) Cylinders must be packaged in accordance with 49 CFR 173.301(k).

(viii) 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. No cylinder may be transported in a partially filled condition other than full or empty per 49 CFR 173.29, unless it is equipped with a pressure relief device designed, manufactured and tested for partially filled cylinders.

(ix) Filling requirements are subject to all terms contained in 49 CFR 173.302 for DOT Specification 3AL cylinders.

8. SPECIAL PROVISIONS:

a. Offerors for transportation of the hazardous materials specified in this exemption may use the packaging described in this exemption for the transportation of such hazardous materials so long as no modifications or changes are made to the packages, all terms of this exemption are complied with, and a copy of the current exemption is maintained at each facility from which such offering occurs.

b. Shippers using the packaging covered by this exemption must comply with all provisions of this exemption, and all other applicable requirements contained in 49 CFR Parts 171-180.

c. 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.

d. A 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.

e. 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 for a specific manufacturing facility.

9. MODES OF TRANSPORTATION AUTHORIZED. Motor vehicle, rail freight, cargo vessel, passenger carrying aircraft, and cargo-aircraft only. (See paragraph 7.b.vi. of this exemption.)

10. MODAL REQUIREMENTS: A copy of this exemption must be carried aboard each cargo vessel and aircraft used to transport packages covered by this exemption. In accordance with the provisions of 49 CFR Part 107, Appendix B to Subpart B, paragraph 3, the shipper shall furnish a 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. Section 5101 et seq.:

- All terms and conditions prescribed in this exemption and the Hazardous Materials Regulations, Parts 171-180.
- Registration required by 49 CFR 107.601 et seq., when applicable.

No person may use or apply this exemption, including display of its number, when the exemption has expired or is otherwise no longer in effect unless a regulation has been amended making the exemption no longer necessary.

12. REPORTING REQUIREMENTS. The carrier is required to report any incident involving loss of packaging contents or packaging failure to the AAHMS as soon as practicable. (49 CFR 171.15 and 171.16 apply to any activity undertaken under the authority of this exemption.) In addition, the holder 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 at Washington, D.C.:

MAY 30 1995

Alan I. Roberts
Associate Administrator
for Hazardous Materials Safety

(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.

The original of this exemption is on file at the above office. Photo reproductions and legible reductions of this exemption are permitted. Any alteration of this exemption is prohibited.

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