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

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

FEB 2 4 2003

DOT-E 12297
(FIRST REVISION)

EXPIRATION DATE: **January 31, 2005**

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. GRANTEE: Applied Companies
Valencia, CA

2. PURPOSE AND LIMITATIONS:

a. This exemption authorizes the manufacture, mark, sale and use of eight (8) non-DOT specification spherical pressure vessels conforming with all regulations applicable to a DOT Specification 4DS cylinder, except as specified herein, for the transportation in commerce of Nitrogen, compressed, Division 2.2 under the terms and conditions specified herein. 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. The safety analyses did not consider the hazards and risks associated with use as a component of a transport vehicle or other device, or other uses not 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 in that a non-DOT specification spherical pressure vessel, manufactured with one welded seam, is not authorized, except as specified herein.

5. BASIS: This exemption is based on the application of Applied Companies dated January 27, 2003 submitted in accordance with § 107.109.

6. HAZARDOUS MATERIALS (49 CFR 172.101):

Proper Shipping Name/ Hazardous Material Description	Hazard Class/ Division	Identi-fication Number	Packing Group
Nitrogen, compressed	2.2	UN1066	NA

7. SAFETY CONTROL MEASURES:

a. PACKAGING - Prescribed packaging is a non-DOT specification spherical cylinder constructed in accordance with Applied Companies drawings number 419-28, 11038, and 11039. Each cylinder must be as detailed in the supporting documentation accompanying the application on file with the Office of Hazardous Materials Exemptions and Approvals (OHMEA). The cylinders must be in conformance with § 178.35 and with DOT Specification 4DS cylinders (§ 178.47) except as follows:

§ 178.35(c) *Duties of inspector.*

(Add) (5) Prior to initial production of any design or design change, verify that the tests and inspections prescribed in this exemption have been performed with acceptable results.

§ 178.35(f) *Markings.*

* * *

(1) Each cylinder must be marked with the following information:

(i) In lieu of the specification marking, each cylinder must be marked with "DOT-E 12297" followed by the service pressure.

* * *

§ 178.47(a) *Type, Size and Service Pressure.* Circumferentially welded hemispherical shells, drawn from Inconel 718 plate, with a water capacity of not over 0.36 pounds (10.5 cubic inches) and maximum service pressure of 5,000 pounds per square inch gauge at 70°F.

§ 178.47(b) *Steel*. Authorized material is Inconel 718 alloy conforming to SAE Aerospace Material Specification (AMS) 5662.

§ 178.47(f) *Wall Thickness*. The minimum wall thickness must be 0.072 inch. The wall stress at the minimum specified test pressure may not be over 118,464 psi.

§ 178.47(g) *Heat Treatment*. After welding, and inspection, the completed cylinder must be uniformly and properly heat treated prior to testing. Heat treatment of the cylinders of the authorized analysis shall be to AMS 5662J.

b. TESTING - Each cylinder must be retested and reinspected at least once every five years in accordance with the requirements prescribed for DOT-4DS cylinders in § 180.209. Evidence of leakage or bulging through the circumferential weld seam shall be reason for cylinder rejection. Requalification through repair is not authorized.

c. OPERATIONAL CONTROLS -

(1) Individual charged cylinders must be shipped in strong outside packaging in accordance with the requirements contained in § 173.301(a)(9).

(2) Cylinders charged and shipped alone must be equipped with a pressure relief device selected, sized and tested in accordance with § 173.301(f). Cylinders charged and shipped as part of a system must be protected by a system pressure relief device with no intervening valving.

d. DESIGN QUALIFICATION TESTS -

(1) One cylinder of each new design must pass the flattening test of § 178.47(m).

(2) Two cylinders of each new design must be subjected to 10,000 pressure cycles from 100 to 10,000 psig at a rate not to exceed 7 cycles per minute. The test cylinders must withstand the cycling pressurization test without any evidence of visually observable leakage or damage growth during or after the test.

(3) The minimum burst pressure must be 15,000 psig, 3.0 times the service pressure 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.

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

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 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. 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 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.

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Robert A. McGuire
Acting 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.

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: SS/alb