U.S. Department
of Transportation

**Research and
Special Programs
Administration**

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

APR 2 2004

DOT-E 13289

EXPIRATION DATE: February 28, 2006

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. GRANTEE: TITEQ Corporation
Palmdale, CA

2. PURPOSE AND LIMITATIONS:

a. This exemption authorizes the manufacture, mark, sale and use of a limited life, non-refillable non-DOT specification steel cylinder similar to a DOT Specification 39 for use in transporting certain Division 2.2 hazardous materials conforming with all regulations applicable to a DOT specification 39 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 §§ 173.302a(a) and 175.3 in that a non-specification cylinder is not authorized; and § 178.65 except as specified herein.

5. BASIS: This exemption is based on the application of TITEQ Corporation dated August 8, 2003, submitted in accordance

with § 107.105 and the public proceeding thereon.

6. HAZARDOUS MATERIALS (49 CFR § 172.101):

| Hazardous Material Description | | | |
|---|---|---|---|
| **Proper Shipping Name** | **Hazard Class/ Division** | **Identi-fication Number** | **Packing Group** |
| Nitrogen, compressed | 2.2 | UN1066 | N/A |
| Helium, compressed | 2.2 | UN1046 | N/A |
| Argon, compressed | 2.3 | UN1006 | N/A |

7. SAFETY CONTROL MEASURES:

a. PACKAGING - Packaging prescribed is a non-DOT specification welded steel sphere with a maximum water capacity of 54 cubic inches and a maximum service pressure of 8,100 psi. Each pressure vessel must conform with TITEQ Corporation Drawing Number 112-11, dated December 14, 2002 on file with the Office of Hazardous Materials Exemptions and Approvals (OHMEA). Each pressure vessel must conform with the DOT Specification 39 (§§ 178.35 and 178.65), except as follows:

178.65(a) Type, size, service pressure and test pressure.

***

(1) Size limitation ***

(2) Test Pressure. Test pressure must be at least 1.52 times the marked service pressure.

178.65(b) Material - The non-DOT specification cylinder must be constructed of 4130 steel or 4340 steel as specified in TITEQ's application on file with OHMEA.

178.65(c) Manufacture

(1) ***

(2) (i)-(vii) ***

(vii) All cylinders must undergo magnetic particle inspection in accordance with MIL-I-6868.

178.65(d)(2) Wall thickness.

(2) Calculations of the stress for cylinders must be made by the following formula:

S=PD/4tE

Where:
S = Wall stress, in psi;
P = Test pressure, in psig;
D = Outside diameter, in inches;
T = minimum thickness, in inches;
E = 1.00 weld efficiency factor which must be applied in the girth weld area and heat zones which does not extend a distance of more than 6 times wall thickness from the center of the weld

Maximum wall stress at test pressure is limited to 110,250 psi.

178.65(f) Pressure tests.

(1) ***

(2) ***

(i) A failure occurs at a gauge pressure of less than 2.25 times the service pressure.

178.65(g) Flattening test.

(4) Cylinders and test rings may not crack when flattened so that the outer surfaces are not more than ten (10) times wall thickness. Flattening between flat plates is permitted.

178.65(i) Markings.

Each cylinder must be marked "DOT-E 13289" in lieu of the "DOT-39" marking required by 178.65(i)(2)(i).

b. OPERATIONAL CONTROLS -

(1) A copy of the Inspector's report required by 178.35(g) for the first lot of cylinders must be submitted to OHMEA prior to the first shipment of cylinders.

(2) Cylinders must be shipped in strong outer packages in accordance with 173.301(a)(9).

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 and cargo aircraft only.

10. MODAL REQUIREMENTS: A current copy of this exemption must be carried aboard each aircraft or motor vehicle used to transport packages covered by this exemption. The shipper must 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.
- Persons operating under the terms of this exemption must comply with the security plan requirement in Subpart I of Part 172 of the HMR, when applicable.
- 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.:

for Robert A. McGuire
Associate Administrator for
Hazardous Materials Safety

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(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: BURGER/sdc