



U.S. Department
of Transportation

**Research and
Special Programs
Administration**

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

APR 21 2004

DOT-E 12442
(FOURTH REVISION)

EXPIRATION DATE: March 31, 2006

(FOR RENEWAL, SEE 49 CFR 107.109)

1. GRANTEE: Cryogenic Vessel Alternatives
Mont Belvieu, TX
2. PURPOSE AND LIMITATIONS:
 - a. This exemption authorizes the manufacture, marking, sale and use of a non-DOT specification vacuum insulated portable tank, conforming with the regulations applicable to a DOT Specification MC 338 cargo tank, except as specified herein, for the transportation in commerce of nitrogen, refrigerated liquid. 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 §§ 173.320 and 176.76(g)(1) in that a non-DOT specification vacuum insulated portable tank is not authorized, except as specified herein.
5. BASIS: This exemption revision is based on the application of Cryogenic Vessel Alternatives dated February 16, 2004, submitted in accordance with § 107.109.

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6. HAZARDOUS MATERIALS (49 CFR 172.101):

Hazardous Materials Description		
Proper Shipping Name	Hazard Class/ Division	Identification Number
Nitrogen, refrigerated liquid	2.2	UN1977

7. SAFETY CONTROL MEASURES:a. PACKAGING -

(1) Packaging authorized is an insulated non-DOT specification portable tank designed and constructed in accordance with DOT Specification MC-338 cargo tank motor vehicle, except as provided herein. Each portable tank is enclosed in an ISO type frame and is vacuum-insulated. Water capacity may not exceed 3200 gallons, nominal. Tanks of two design pressures (45 psig and 100 psig) are authorized.

Design temperature must be -320°F for the inner tank and any part, valve or fitting that may come in contact with the lading. Tank material must be SA 240 Type 304 stainless steel for the inner tank and A607 Grade 50 carbon steel for the outer jacket.

(2) Tanks must conform with Cryogenic Technical Services, Inc. drawing numbers 10298 dated 2/22/00, 10375 dated 2/14/00, 10404 dated 2/15/00, 10252 dated 1/20/00, A1027 dated 4/28/03 and other drawings, calculations, specifications on file with the Office of Hazardous Materials Exemptions and Approvals (OHMEA). Additionally, tanks must conform with § 178.338, except as follows:

(i) Impact testing is not required for stainless steels used for a lading warmer than -425°F.

(ii) § 178.338-10 does not apply.

(iii) The portable tank need not conform with § 178.338-13(b) or (c). Lifting lugs, framework and any anchoring to the inner tank or the tank jacket must conform with § 178.338-13(a).

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(iv) Portable tanks that meet the definition of "container" must meet the requirements of 49 CFR parts 450 thru 453, and each design must be qualified in accordance with § 178.270-13(c).

(v) New construction of tanks to be authorized by this exemption is prohibited after December 31, 2003.

- b. TESTING - Each portable tank must be reinspected and retested once every five years in accordance with the procedure prescribed in § 180.605 for DOT Specification 51 portable tanks. The test pressure for the inner tank shall be determined from the following formulas:

If there is no vacuum in the outer jacket during test:

$$P_r = 1.25 \times P_d$$

If vacuum exists in the outer jacket during test:

$$P_r = [1.25 \times P_d] - 14.7$$

Where:

P_r = Test pressure, psig

P_d = Design pressure (the sum of the maximum allowable working pressure, static head of liquid in inner tank in psi, and 14.7 psi)

- c. OPERATIONAL CONTROLS -

(1) Each portable tank must be prepared and shipped as required in § 173.318, as applicable for the lading.

(2) Shipments by cargo vessel must conform with § 176.76(g). The portable tank must not be overstowed with other containers or freight.

(3) Any lading road relief valve set at a pressure lower than that prescribed for the (safety) pressure relief valve must be closed during transportation by cargo vessel.

(4) Tanks with ISO corner castings may be stacked, but not more than one tank may be stacked on another.

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.

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- 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 modifications or changes are made to the package 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. Each portable tank must be plainly marked "DOT-E 12442" on both sides near the middle, in letters at least two inches high on a contrasting background. Additionally, "DOT-E 12442" must replace the mark "MC-338" on the nameplate specified in § 178.338-18(a).
9. MODES OF TRANSPORTATION AUTHORIZED: Motor vehicle and cargo vessel.
10. MODAL REQUIREMENTS: A current copy of this exemption must be carried aboard each cargo vessel or 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:
- o All terms and conditions prescribed in this exemption and the Hazardous Materials Regulations, 49 CFR Parts 171-180.
 - o 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.

- o 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
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: PTolson/dl