



U.S. Department  
of Transportation

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

**Research and  
Special Programs  
Administration**

**JUL 2 2004**

DOT-E 9490  
(FOURTH REVISION)

EXPIRATION DATE: May 31, 2006

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. GRANTEE: National Refrigerants, Inc.  
Philadelphia, Pennsylvania
2. PURPOSE AND LIMITATION:
  - a. This exemption authorizes the transportation in commerce of certain Division 2.1 and 2.2 gases in non-DOT Specification IMO Type 5 portable tanks. 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 § 173.315 in that non-DOT specification portable tanks are authorized for the materials described in paragraph 6 below, except as specified herein.
5. BASIS: This exemption is based on the application of National Refrigerants, Inc. dated April 9, 2004, submitted in accordance with § 107.109.

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6. HAZARDOUS MATERIALS (49 CFR § 172.101):

Proper Shipping Name/ Hazardous Materials Description	Hazard Class/ Division	Identi- fication Number	Packing Group
Dichlorodifluoromethane or Refrigerant gas R 12	2.2	UN1028	N/A
Chlorodifluorobromomethane or Refrigerant gas R 12B1	2.2	UN1974	N/A
1-Chloro-1,1-difluoroethane or Refrigerant gas R 142b	2.1	UN2517	N/A
1, 1-Difluoroethane or Refrigerant gas R 152a	2.1	UN1030	N/A
1,2-Dichloro-1,1,2,2- Tetrafluoroethane or refrigerant gas R 114	2.2	UN1958	N/A
Dimethyl ether	2.2	UN1033	N/A
1,1,1,2-tetrafluoroethane or refrigerant gas R 134a	2.2	UN3159	N/A

7. SAFETY CONTROL MEASURES:

a. PACKAGING - Packaging prescribed is a non-DOT specification portable tank, mounted in an ISO frame, designed and constructed in accordance with ANF-Industrie drawings nos. 46050.990.014 Rev. A, dated June 11, 1985, and 46050.191.008 Rev. B dated June 3, 1985, and other drawings, technical specifications and calculations on file with the Office of Hazardous Materials Exemptions and Approvals (OHMEA), and in compliance with the following:

(1) Code - Complies with DOT Specification 51 except that tanks are not ASME Code "U" stamped and have bottom outlets; IMO Type 5.

(2) Insulation - None. Tanks are equipped with a sun shield.

(3) Water capacity (U.S. Gallons) - 4,438.

(4) Material - French standard NFA 36 205, designation A 52 FP, Yield strength - 48,575 psi; Tensile strength - 73,950 psi.

(5) Tank Size (inches) (outside dia.) X (length) X (thickness)  
78.74 233.27 0.429(min.)

Head Thickness - 0.389 (min.)  
Weld Joint Efficiency - 1.0  
Corrosion Allowance - 0.0  
Number of Baffles - 2

(6) Design Pressure (PSIG) - 197

Note: Design pressure means "maximum allowable working pressure (MAWP)" as used in the ASME Code.

(7) Test Pressure, Minimum (PSIG) - 295

(8) Openings - Two (2) - 7.5 inch diameter opening for the pressure relief devices on the top; one (1) - 24.4 inch diameter opening for the manhole on the head; one (1) - 8.3 inch diameter opening for the liquid phase valve and one (1) - 6.5 inch diameter opening for the vapor phase valve on the bottom. NOTE: Each bottom outlet valve must be provided with a shear section that meets the requirements of § 178.337-12.

(9) Tank surface area (square feet) - 441

(10) Pressure Relief Devices - Two (2) - 2 inch diameter spring loaded safety relief valves set at 197 psig. Total relief device capacity is 1,097,646 SCFH.

(11) G-Loadings: Vertical down 2 : Vertical up 2 :  
Longitudinal 2 : and Transverse 2 .

(12) Maximum Gross Weight (pounds:) - 67,196

(13) Maximum Commodity Weight (pounds) - 54,233

(14) Tare Weight (pounds) - 12,963

(15) Design Specific Gravity - 1.46

(16) Design Temperature Range (°F) - -40 to 122

b. TESTING -

- (1) Hydrostatic test certificates for each tank must be maintained by the owner or manufacturer at its principal business office and be made available to any representative of the DOT upon request.
- (2) A test report documenting a satisfactory ISO prototype test for this tank design must be on file with the OHMEA prior to the first shipment.
- (3) Each tank must be:
  - (i) Visually inspected prior to each trip to ensure that it has not been damaged on the previous trip; and
  - (ii) Retested and re-inspected once every five years in accordance with § 180.605 as prescribed for DOT Specification 51 portable tanks.
- (4) For each portable tank, the manufacturer must prepare a certificate which must be signed by a responsible official of the manufacturer and an independent inspection agency certifying that the portable tank is designed and constructed in accordance with the ASME Code and this exemption. The certificate for the first portable tank fabricated must be submitted to the OHMEA prior to the initial shipment.

c. OPERATIONAL CONTROLS -

- (1) Each portable tank must be plainly marked on both sides near the middle, at least two inches high on a contrasting background, "DOT-E 9490".
- (2) No product may be shipped that has venting requirements exceeding 1,097,646 SCFH. The venting capacity required for each product must be determined by the flow formulas contained in Compressed Gas Association (CGA) pamphlet-S-1.2.
- (3) The tank must be filled by weight in accordance with provision of § 173.315.
- (4) DOT-E 9490 must be stamped on the metal manufacturer's data plate on the line which reads "U.S. Specification No.".

- (5) The construction of all portable tanks authorized by this exemption stated after January 1, 1986, must be in full conformance with the ASME Code including the "U" stamp.

8. SPECIAL PROVISIONS:

a. A person who is not a holder of this exemption who 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 reoffered for transportation in conformance with this exemption and the HMR.

b. A current copy of this exemption must be maintained at each facility where the package is offered or reoffered for transportation.

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

10. MODAL REQUIREMENTS:

a. A current copy of this exemption must be carried aboard each cargo vessel or motor vehicle used to transport packages covered by this exemption.

b. Portable tanks may not be transported in container-on-flat car (COFC) or trailer-on-flat car (TOFC) service except under conditions approved by the Associate Administrator for Safety, Federal Railroad Administration.

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:

a. The owner of the tanks covered by this exemption must provide to the OHMEA a list of all shippers who have shipped under this exemption and a shipping experience report every six months from the effective date of this exemption. The shipping experience report must contain approximate number of shipments made during the previous six months and any difficulties encountered.

b. The holder or parties to this exemption, as identified in paragraph 1 above, must contact the OHMEA immediately after any of the tanks covered by this exemption are sold to another party.

c. Shippers who ship under the terms of this exemption must report any incident involving loss of contents of the tanks described herein to the OHMEA as soon as practicable.

Issued in Washington, D.C.:



Robert A. McGuire  
 Associate Administrator for  
 Hazardous Materials Safety

JUL 2 2004

(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.

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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.

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