



U.S. Department
of Transportation

**Research and
Special Programs
Administration**

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

JUL 8 2004

DOT-E 6611
(EIGHTH REVISION)

EXPIRATION DATE: June 30, 2006

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. GRANTEE: Air Products and Chemicals, Inc.
Allentown, PA

(See Appendix A to this exemption for a list of additional grantees)

2. PURPOSE AND LIMITATION:

a. This exemption authorizes the use of non-DOT specification portable tanks for the transportation in commerce of certain nonflammable cryogenic liquids. 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 §§ 172.203 and 173.318 in that non-DOT specification portable tanks are not authorized, except as specified herein.
5. BASIS: This exemption is based on the application of Air Products and Chemicals, Inc. dated May 4, 2004, submitted in accordance with § 107.109.

6. HAZARDOUS MATERIALS (49 CFR § 172.101):

JUL - 8 2004

Proper Shipping Name/ Hazardous Materials Description	Hazard Class/ Division	Identi- fication Number	Packing Group
Helium, refrigerated liquid (<i>cryogenic liquid</i>)	2.2	UN1963	N/A

7. SAFETY CONTROL MEASURES:

a. PACKAGING - Prescribed packaging is a non-DOT specification portable tank designed and constructed in accordance with Section VIII of the ASME Code and subparagraphs b. or c. of this paragraph. The portable tank is skid-mounted or enclosed in an ISO type frame. The portable tank is vacuum-insulated with a supplemental liquid nitrogen shield. Design pressure is 115 psig for the internal tank, and 6 psig for the liquid nitrogen tank. Design temperature is -452°F., for the inner tank and any part, valve or fitting that may come in contact with the lading; and -320°F., for the liquid nitrogen tank and any part, valve or fitting that may come in contact with liquid nitrogen. Water capacity is 5,000 gallons for the inner tank. Inner and nitrogen tank material is SA 240 Type 304 or 3041 stainless steel. Jacket material is SA 36, (ASTM) A 283 or equivalent steel.

b. Each portable tank must conform to Gardner Cryogenics' drawing 6510A, design calculation #1190 and supplemental data and calculations furnished with Gardner Cryogenics' letter dated December 21, 1973, on file with the Office of Hazardous Materials Exemptions and Approvals (OHMEA). No new construction is authorized unless the portable tank design conforms with paragraph 7.c. of this exemption.

c. New construction after December 31, 1991, must conform with § 178.338, except as follows: Corresponding drawings and calculations must be submitted to the OHMEA prior to first shipment of a new tank design.

- (1) Impact testing is not required for Type 304 or 3041 stainless steel.

JUL 8 2004

(2) Section 178.338-10 does not apply.

(3) The portable tank need not conform with § 178.338-13(a) or (b). Lifting lugs, framework and any anchoring to the inner tank, the nitrogen shield tank or tank jacket must conform with § 178.338-13(a). A portable tank that meets the definition of "container" must meet the requirements of 49 CFR Parts 450 through 453 and each tank design must be qualified in accordance with § 178.270-13(c).

(4) Effective August 1, 2002, "DOT-E 6611" must replace the mark "MC 338".

d. Each portable tank must be equipped with pressure relief devices conforming with § 173.318 as applicable for the lading. Tanks made before March 2, 1977, may be equipped with pressure relief devices having a relief capacity of 3030 SCFM.

8. SPECIAL PROVISIONS:

a. Each portable tank must be reinspected and retested once ever five years in accordance with § 180.605 as prescribed for DOT Specification 51 portable tanks. The test pressure of the inner tank must be determined from the following formulas:

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

$$P_T = 1.25 \times [P_d + H^s + 14.7]$$

If vacuum exists in the outer jacket during test:

$$P_T = 1.25 \times [P_d + H_s + 14.7] - 14.7$$

Where:

P_T = Test pressure (psig)

P_d = Design pressure (maximum allowable working pressure) (psig)

H_s = Static head of liquid in inner tank (psig)

JUL 8 2004

b. Each portable tank must be plainly marked on both sides near the middle, in letters at least two (2) inches high on a contrasting background, "DOT-E 6611".

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

d. Shipments by cargo vessel must conform with the following:

(1) The package must conform with § 176.76(h). Portable tanks may be overstowed only if enclosed in ISO-type frames and otherwise suitably protected. In all situations, the portable tanks must be stowed such that they are readily accessible and can be monitored in accordance with the provisions of this exemption.

(2) The legend "One Way Travel Time _____ Hours" (OWTT) must be marked on the shipping paper and on the dangerous cargo manifest immediately after the container description. The OWTT is determined by the formula:

$$\text{OWTT} = \text{MRHT} - 24 \text{ hours.}$$

(3) A written record of the portable tank's pressure and ambient (outside) temperature at the following times must be prepared for each shipment:

- (i) At the start of each trip;
- (ii) Immediately before and after any manual venting;
- (iii) At least once every 24 hours; and
- (iv) At the destination point.

(4) Any lading road relief (pressure control) valve (PCV) set at a pressure lower than that prescribed for the (safety) pressure relief valve must be closed, unless the OWTT is determined based on the setting of the PCV.

JUL 8 2004

e. No person may transport a charged portable tank unless the pressure of the lading is equal to or less than that used to determine the marked rated holding time and the OWTT is equal to or greater than the elapsed time between the start and termination of travel.

f. The actual holding time for each tank must be determined after each shipment. If it is determined that the actual holding time is less than 90 percent of the MRHT of the tank, the tank may not be refilled until it is restored to its MRHT or the tank is remarked with the reduced holding time determined by this examination.

g. 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 modification or change is made to the package or its contents and it is reoffered for transportation in conformance with this exemption and the HMR.

h. 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 and cargo vessel.
10. MODAL REQUIREMENTS: A current copy of this exemption must be carried aboard each cargo vessel and 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.

JUL - 8 2004

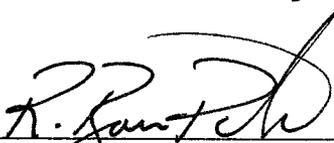
- o Registration required by § 107.601 et seq., when applicable.

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 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 inform the AAHMS, in writing, of any incident involving the package and shipments made under the terms of this exemption.

Issued in Washington, D.C.:



Robert A. McGuire
Associate Administrator for
Hazardous Materials Safety

JUL 8 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.

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: Olson/sln

The following are hereby granted party status to this exemption based on their application(s) submitted in accordance with § 107.107 or § 107.109, as appropriate:

Company Name City/State	Application Date	Issue Date	Expiration Date
Air Liquide America L.P. (Former Grantee: Air Liquide America) Corporation Houston, TX	Jun 28, 2004	JUL 8 2004	June 30, 2006
Air Products Helium, Inc. (APHI) Allentown, PA	May 4, 2004	JUL - 8 2004	Jun 30, 2006
L'Air Liquide Corporation Le Blanc-Mesnil, FR (U.S. Agent: Air Liquide America L.P. Houston, TX)	Jun 28, 2004	JUL - 8 2004	Jun 30, 2006



Robert A. McGuire
fr Associate Administrator for
 Hazardous Materials Safety

JUL 8 2004
 Date