U.S. Department
of Transportation

**Research and
Special Programs
Administration**

JUN 30 1997

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

DOT-E 11832

EXPIRATION DATE: *June 30, 1999*

(FOR RENEWAL, SEE 49 CFR 107.109)

1. GRANTEE: Air Liquide America Corporation
Houston, Texas

2. PURPOSE AND LIMITATIONS:

This exemption authorizes the manufacture, marking and sale of a vacuum insulated, cold mass shielded, non-DOT specification portable tank to be used for the transportation in commerce of helium, refrigerated liquid. This exemption provides no relief from any regulation other than as specifically stated herein.

3. REGULATORY SYSTEM AFFECTED: 49 CFR Parts 106, 107 and 171-180.

4. REGULATIONS FROM WHICH EXEMPTED: 49 CFR 173.318 in that a non-DOT Specification portable tank is authorized and 178.338 as specified herein.

5. BASIS: This exemption is based on the application of Air Liquid America Corporation, dated January 24, 1997 submitted in accordance with 49 CFR 107.105 and the public proceeding thereon.

6. HAZARDOUS MATERIALS (49 CFR 172.101):

Hazardous materials description -- proper shipping name	Hazard Class/ Division	Identi- fication Number	Packing Group
Helium, refrigerated liquid	2.2	UN1963	N/A

7. PACKAGING AND SAFETY CONTROL MEASURES:

a. PACKAGING - (1) Packaging prescribed is a vacuum insulated non-DOT specification portable tank designed and constructed in accordance with a DOT Specification MC-338 cargo tank motor vehicle except as modified herein.

The portable tank is enclosed in an ISO type frame and is vacuum insulated with a cold mass shield. Design pressure is 188.5 PSIG for the internal tank and the outer jacket is designed to withstand a collapse pressure of 30 PSI. Design temperature is -452°F. Water capacity is 1,800 gallons, nominal for the inner tank. Tank material is SA 240 Type 304L stainless steel for the inner tank, 304L or 316L stainless steel for the internal piping, and SA36-516-60 carbon steel for the outer jacket.

(2) Each portable tank must conform to Air Liquide America Corporation assembly drawings numbers:

411.4490.A.A2.001	411.4490.A.A0.011
411.4490.A.A0.006	411.4490.A.A0.012
411.4490.A.A0.007	411.4490.A.A0.013
411.4490.A.A0.009	411.4490.A.A0.014
411.4490.A.A0.010	411.4490.A.A0.015

Calculations and specifications on file with Office of Hazardous Materials Exemptions and Approvals (OHMEA) and with 49 CFR 178.338, except as follows:

(i) Section 178.338-10 does not apply.

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

(iii) Portable tank designs 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 49 CFR 178.270-13(c).

(iv) "DOT-E 11832" must replace the mark "MC-338" on the nameplate specified in §178.338-18(a).

b. <u>TESTING</u> - Each portable tank must be reinspected and retested once every five years in accordance with the procedure prescribed in 49 CFR 173.32(e) 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:

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

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 (the sum of the maximum allowable working pressure, liquid head and 14.7 psi)

H_s = Static head of liquid in inner tank, psi

c. OPERATIONAL CONTROLS

(1) Each portable tank must be prepared and shipped as required in 49 CFR 173.318, as applicable for the lading.

(2) 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 (MRHT) and the One-way Travel Time is equal to or greater than the elapsed time between the start and termination of travel.

(3) 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.

(4) The holding time and the MRHT of the first portable tank must be determined and results thereof must be submitted to OHMEA prior to initial shipment.

(5) The portable tank must be secured to the motor vehicle in accordance with the requirements of 49 CFR 393.100 through 393.106. Additionally, the motor vehicle's bumper must be located at least 6 inches to the rear of any tank component used for loading or unloading that may contain lading during transit.

8. SPECIAL PROVISIONS:

a. Offerors for transportation of the hazardous materials specified in this exemption may use the packaging described in this exemption for the transportation of such hazardous materials so long as no modifications or changes are made to the packages, all terms of this exemption are complied with, and a copy of the current exemption is maintained at each facility from which such offering occurs.

b. 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 OHMEA for a specific manufacturing facility.

c. A copy of this exemption, in its current status, must be maintained at each manufacturing facility at which this packaging is manufactured and must be made available to a DOT representative upon request.

d. Shippers using the packaging covered by this exemption must comply with all provisions of this exemption, and all other applicable requirements contained in 49 CFR Parts 171-180.

e. MARKING - Each portable tank must be plainly marked "DOT-E 11832" on both sides near the middle, in letters at least two inches high on a contrasting background.

9. MODES OF TRANSPORTATION AUTHORIZED: Motor vehicle.

10. MODAL REQUIREMENTS: A copy of this exemption must be carried aboard each 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 Federal hazardous materials transportation law 49 U.S.C. Section 5101 et seq:

- All terms and conditions prescribed in this exemption and the Hazardous Materials Regulations, 49 CFR Parts 171-180.
- Registration required by 49 CFR 107.601 et seq., when applicable.

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. (49 CFR 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 at Washington, D.C.

JUN 30 1997

Alan I. Roberts
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.

The original of this exemption is on file at the above office. Photo reproductions and legible reductions of this exemption are permitted. Any alteration of this exemption is prohibited.

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