U.S. Department
of Transportation
**Research and
Special Programs
Administration**

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

FEB 3 2003

DOT-E 11559
(FOURTH REVISION)

EXPIRATION DATE: January 31, 2005

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. GRANTEE: Chart Industries, Inc.
Cleveland, OH

2. PURPOSE AND LIMITATIONS:

a. This exemption authorizes the manufacture, mark, sale and use of non-DOT specification insulated portable tanks conforming with all regulations applicable to a DOT Specification MC-338 cargo tank motor vehicle for the transportation in commerce of helium, 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 §§ 173.318 and 176.76(g) in that a non-DOT specification packaging is not authorized, except as specified herein.

5. BASIS: This exemption is based on the application of Chart Industries, Inc. dated January 8, 2003, submitted in accordance with § 107.109.

6. HAZARDOUS MATERIALS (49 CFR § 172.101):

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

7. SAFETY CONTROL MEASURES:

a. PACKAGING - Prescribed packaging is an insulated non-DOT specification portable tank designed and constructed in accordance with 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 supplemental liquid nitrogen shield. Design pressure is 91.5 PSIG for the internal tank, and 10 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 11,000 gallons, nominal for the inner tank and 390 gallons for the nitrogen tank. Tank material is SA 240 type 304 for the inner tank and for the nitrogen tank; and A 607 Grade 50 carbon steel for the outer jacket.

The tank must conform with Cryogenic Technical Services, Inc. Drawing Nos. 5328 Rev. A dated 2/20/95; 5296 Rev. C Sheets 1 & 2 dated 11/19/94; 5320 Rev. 0 dated 11/19/94 and 5610 Rev. B Sheets 1 & 2 dated 1/31/95 and other referenced drawings, calculations and specifications on file with the Office of Hazardous Materials Exemptions and Approvals (OHMEA) and with § 178.338, except as follows:

(1) § 178.338-10 does not apply.

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

(3) 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).

(4) "DOT-E 11559" must replace the mark "MC-338" on the nameplate specified in §178.338-18(a).

b. TESTING - Each portable tank must be reinspected and retested once every five years in accordance with the procedure prescribed in § 173.32 for DOT Specification 51 portable tanks. The test pressure for the inner tank must 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 § 173.318, as applicable for the lading.

(2) Shipments by cargo vessel must conform with the following:

(i) The package must conform with § 176.76(g). The portable tank must not be overstowed with other containers or freight.

(ii) The legend "One-Way Travel Time _____ Hours" or "OWTT _____ Hours" 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:

OWTT = MRHT - 24 hours.

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

(A) At the start of each trip;

(B) Immediately before and after any manual venting;

(C) At least every 24 hours; and

(D) At the destination point.

(iv) 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 unless the holding time was determined based on the setting of the pressure control valve.

(3) No person may transport or offer for transportation 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 OWTT is equal to or greater than the elapsed time between the start and termination of travel.

(4) 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.

(5) 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.

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 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. MARKING - Each portable tank must be plainly marked "DOT-E 11559" on both sides near the middle, in letters at least two inches high on a contrasting background.

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

- All terms and conditions prescribed in this exemption and the Hazardous Materials Regulations, Parts 171-180.
- 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 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.

R. Ben Pitt

For Robert A. McGuire
Associate Administrator for
Hazardous Materials Safety

FEB 3 2003
(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: KFW/AM