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

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

AUG 5 2003

DOT-E 11186
(THIRTEENTH REVISION)

EXPIRATION DATE: July 31, 2005

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. GRANTEE: Chart Industries, Inc.
Storage Systems Division
Cleveland, OH

2. PURPOSE AND LIMITATIONS:

a. This exemption authorizes the manufacture, mark, sale and use of a non-DOT specification vacuum insulated portable tank conforming with all regulations applicable to a DOT Specification MC 338 cargo tank motor vehicle for the transportation in commerce of the materials authorized by this exemption. 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 in that portable tanks are not authorized; §§ 176.30 and 176.76(g), except as specified herein.

5. BASIS: This exemption is based on the application of Chart Industries, Inc. dated July 10, 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**
Argon, refrigerated liquid *(cryogenic liquid)*	2.2	UN1951	N/A
Carbon Dioxide, refrigerated liquid	2.2	UN2187	N/A
Ethane, refrigerated liquid	2.1	UN1961	N/A
Ethylene, refrigerated liquid *(cryogenic liquid)*	2.1	UN1038	N/A
Helium, refrigerated liquid *(cryogenic liquid)*	2.2	UN1963	N/A
Methane, refrigerated liquid *(cryogenic liquid) or* Natural gas, refrigerated liquid *(cryogenic liquid)*, with high methane content.	2.1	UN1972	N/A
Nitrogen, refrigerated liquid *(cryogenic liquid)*	2.2	UN1977	N/A
Nitrous Oxide, refrigerated liquid	2.2	UN2201	N/A
Oxygen, refrigerated liquid *(cryogenic liquid)*	2.2	UN1073	N/A
Trifluoromethane, refrigerated liquid	2.2	UN3136	N/A

7. SAFETY CONTROL MEASURES:

a. PACKAGING - Prescribed packagings are 12 models of non-DOT specification portable tanks designed, constructed and "U" stamped in accordance with Section VIII, Division 1 of the ASME Code. Each tank must conform to the design criteria set forth below:

CRYENCO MODEL NUMBER	WORKING PRESSURE (PSIG)	MINIMUM TEMP. (°F)	VOLUME (GALS)	DRAWING NUMBER
TVS-23-PB-45	45	-320	2300	257794
TVS-33-PB-45	45	-320	3306	254967 or 258778
TVS-22-PB-90	90	-320	2283	253005
TVS-32-PB-90	90	-320	3289	253856-10
TVS-54-PB-60	60	-320	5400	252363
TVS-54-VB-60	60	-320	5400	253191
TVS-53-PB-150	150	-320	5350	118467
TVS-53-VB-150	150	-320	5350	253763
TVS-53-B-150-He	150	-453	5200	252846
TVS-52-PB-250	250	-320	5270	251966
TVN-52-EB-350	350	-320	5200	256468
TVN-520B--350	350	-320	5200	256098

Each portable tank is vacuum insulated and enclosed in a frame that meets all requirements of an ISO standard frame except for overall dimensions. The portable tank must conform to Chart Industries, Inc. (formerly Cryenco, Inc.'s) drawings, calculations and specifications on file with the Office of Hazardous Materials Exemptions and Approvals (OHMEA). Packagings authorized must conform with § 178.338 except as follows:

(1) § 178.338-2(c): Impact testing is not required for stainless steels used for a lading warmer than -425°F.

(2) § 178.338-6(b): Each portable tank in oxygen or nitrous oxide service must be provided with an inspection access hole (manhole) of not less than 16.0 inches (406 mm) diameter. After a final inspection the access hole must be closed by welding using a suitable access cover plate fabricated from the same material as the tank. The tank must be provided with a means of entrance and exit through the jacket, or the jacket must be marked to indicate the access hole location.

(3) § 178.338-10: This section does not apply.

(4) § 178.338-13(a): Lifting lugs, framework and any anchoring to the inner tank or the tank jacket must conform with § 178.338-13(a). The portable tank need not conform to § 178.338-13(b) or (c).

(5) § 178.338-18(a)(1): Each portable tank must be plainly and durably marked "DOT-E 11186" in place of the DOT Specification Number MC-338.

(6) A portable tank that meets the definition of "container" must meet the requirements of 49 CFR parts 450 through 453, and each design must be qualified in accordance with § 178.270-13(c).

b. TESTING - The portable tank must be reinspected and retested once every five years in accordance with the procedure prescribed in § 173.32(e) for DOT Specification 51 portable tanks. In place of the requirement for visual inspection, before and after vacuum readings must be used to detect leakage. Nitrogen or an inert gas may be used as a test medium in place of air or water as required by § 173.32(e)(2)(i). The test pressure for the inner tank must be determined from the following formula:

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

Where:

P_T = Test pressure, psig

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

c. OPERATIONAL CONTROLS -

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

(2) No person may transport a portable tank containing Division 2.1 liquid 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.

(3) For the transport of Division 2.1 liquid, 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.

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 (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 on both sides near the middle, in letters at least two inches high on a contrasting background, "DOT-E 11186", in place of "MC 338".

g. Transportation of Division 2.1 (flammable gases) materials are not authorized aboard cargo vessel unless specifically authorized in the Hazardous Materials Table (§ 172.101).

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. Shipments by cargo vessel must conform with the following:

(1) The package and its stowage must conform with § 176.76(g). 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. Portable tanks may be overstowed only if enclosed in ISO frames and the following provisions are met:

(i) 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.

(ii) 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% of the MRHT of the tank, a charged tank may not be overstowed until it is restored to its MRHT or the tank is re-marked with the reduced holding time determined by this exemption.

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

OWTT = MRHT - 24 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 every 24 hours; and

(iv) At the destination point.

(4) 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.

(5) The requirements of paragraphs, 10.b(2) and (3) above are waived if all of the following conditions are met:

(i) The lading is liquid nitrogen.

(ii) Transportation by cargo vessel is to oil and gas production facilities within the jurisdiction of the United States of America.

(iii) The portable tank is not overstowed with other containers or freight.

c. The portable tank 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 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, 49 CFR 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. Boucher

Robert A. McGuire
for Associate Administrator for
Hazardous Materials Safety

AUG 5 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: PTOlson/alb