U.S. Department
of Transportation

**Research and
Special Programs
Administration**

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

MAR 15 1993

DOT-E 10283

1. Hoyer GmbH, Hamburg, Germany (US Agent: ABS Industrial Verification Inc., Houston, Texas), is hereby granted an exemption from certain provisions of this Department's Hazardous Materials Regulations to offer a package prescribed herein of certain refrigerated liquids described in Paragraph 3 for transportation in commerce subject to the limitations and special requirements specified herein. This exemption authorizes the use of a vacuum insulated, non-DOT specification portable tank in an ISO frame for the transportation of certain refrigerated liquids, all classed as a Division 2.2 gas, and provides no relief from any regulation other than as specifically stated.

2. BASIS. This exemption is based on Hoyer GmbH's application dated December 3, 1991, submitted in accordance with 49 CFR 107.103, and additional information dated May 22, 1992, and the public proceeding thereon.

3. HAZARDOUS MATERIALS (Descriptor and class). Liquid argon, liquid nitrogen or liquid oxygen, classed as Division 2.2.

4. PROPER SHIPPING NAME (49 CFR 172.101). Argon, refrigerated liquid (cryogenic liquid); Nitrogen, refrigerated liquid (cryogenic liquid), or Oxygen, refrigerated liquid (cryogenic liquid), as appropriate.

5. REGULATIONS AFFECTED. 49 CFR 172.203, 173.318, 173.320, 176.30, 176.76(h), 178.338.

6. MODES OF TRANSPORTATION AUTHORIZED. Motor Vehicle, Rail Freight and Cargo Vessel.

7. SAFETY CONTROL MEASURES. Packaging prescribed is a non-DOT specification portable tank designed and constructed in accordance with Section VIII of the ASME Code but is not ASME Code "U" stamped. The portable tank is vacuum insulated; has a water capacity of 5020 gallons (19,000 liters); is assembled in a 20 ft x 8 ft x 8 ft 6 inches - ISO frame; manufactured by M1 Engineering Ltd., Bradford, Yorkshire, England; and is identified by manufacturer's serial number MC/007/87 and owner's serial number HOYU 797008. The tank has a maximum allowable working pressure of 65.2 psig (4.5 bars), a design pressure of 84 psig (5.8 bars), a design temperature of -320°F (-196°C).

a. The portable tank must conform to M1 Engineering Limited's drawings C 265 044, and associated drawings referenced therein, and supporting calculations on file with the Office of Hazardous Materials Exemptions and Approvals (OHMEA).

b. The portable tank authorized under this exemption must conform with 49 CFR 178.338 except as follows.

(1) §178.338-2 (a): Tank construction material is SA 240 Type 304 austenitic stainless steel for the inner tank; and BS 1501 Pt.3- 304 stainless steel for the outer jacket. Material for structural attachments is SA 36 or equivalent specification steel.

(2) §178.338-2 (e): Post weld heat treatment is not required.

(3) §178.338-6 (b): The portable tank must be provided with an inspection access hole (manhole) of not less than 16.9 inches (450 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.

(4) §178. 338-10: Does not apply.

(5) §178.338-13: The portable tank need not conform with §178.338-13(b) or (c). 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 49 CFR 178.270-13(c).

(6) "DOT-E 10283" must replace the mark "MC 338".

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

c. The 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:

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

If vacuum exists in the outer jacket during test:

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

Where:

P_T = Test pressure, psig

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

d. The 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 10283".

e. 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.

f. The portable tank must be prepared and shipped as required in 49 CFR 173.318, as applicable for the lading.

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

(1) The package and its stowage must conform with 49 CFR 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" 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.

(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 (pressure control) valve (PCV) set at a pressure lower than that prescribed for the (safety) pressure relief valve must be closed during transportation by cargo vessel, unless the OWTT is determined based on the setting of the PCV.

h. 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 expected elapsed time between the start and termination of travel.

i. 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.

9. <u>REPORTING REQUIREMENTS</u>. Any incident involving loss of packaging contents or packaging failure must be reported to the Associate Administrator for Hazardous Materials Safety as soon as practicable. The release of contents is not a reportable incident if the release is through a pressure controlling device set at 25 PSIG or less during shipments by motor vehicle.

10. <u>EXPIRATION DATE</u>. October 31, 1994.

Issued at Washington, D.C.:

MAR 15 1993

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, U.S. Department of Transportation, Washington, D.C. 20590.
Attention: Exemptions Branch.

Dist: USCG, FHWA, FRA.