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

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

SEP 18 2002

DOT-E 9730
(THIRD REVISION)

EXPIRATION DATE: August 31, 2004

(FOR RENEWAL, SEE 49 CFR § 107.109)

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

2. PURPOSE AND LIMITATION:

a. This exemption authorizes the transportation in commerce of Hydrogen, refrigerated liquid in a vacuum insulated DOT specification MC-338 cargo tank. This exemption provides no relief from any Hazardous Materials Regulation (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 a DOT Specification 338 cargo tank is not authorized and 176.30, in that a dangerous cargo manifest is required, except as specified herein.

5. BASIS: This exemption is based on the application of Air Products and Chemicals, Inc. dated November 19, 2001, submitted in accordance with § 107.109.

6. HAZARDOUS MATERIALS (49 CFR § 172.101):

| Proper Shipping Name/ Hazardous Materials Description -- | Hazard Class/ Division | Identi-fication Number | Packing Group |
|---|---|---|---|
| Hydrogen, refrigerated liquid (*cryogenic liquid*) | 2.1 | UN1966 | N/A |

7. SAFETY CONTROL MEASURES:

a. PACKAGING - Packaging prescribed is a DOT MC 338 Specification cargo tank insulated with vacuum. Design pressure is 150 PSIG for the internal tank, and 6 psig for the liquid nitrogen tank. Nominal water capacity is 13,620 gallons for the inner tank. Tank material is SA 240 Type 304 stainless steel for the inner tank and the nitrogen tank; and SA 36, ASTM A 283 or equivalent steel for the outer jacket. Each cargo tank must conform to and must be equipped with special fire-abatement systems in accordance with Gardner Cryogenics' drawing number 11722D approved February 1, 1984, on file with the Office of Hazardous Materials Exemptions and Approvals.

b. TESTING - Each cargo tank must be reinspected and retested once every 5 years in accordance with § 180.407(c) as prescribed for DOT Specification MC 338 cargo tanks.

8. SPECIAL PROVISIONS:

a. 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 modifications or changes are made to the package and it is reoffered for transportation in conformance with this exemption and the HMR.

b. A current copy of this exemption must be maintained at each facility where the package is offered or reoffered for transportation.

c. Maximum filling density is 6.13 percent at a pressure control valve setting of 40 psi.

d. The package must conform with the requirements contained in § 176.76(g). The cargo tank must be stowed in the open and located so as to prevent any accumulation of hydrogen.

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

(1) At the start of each trip;
(2) Immediately before and after any manual venting;
(3) At least every 12 hours; and
(4) At the destination point.

f. The Coast Guard Captain of the Port must be notified of any shipment at least 24 hours in advance.

g. Any lading road relief valve set at a pressure lower than 40 psig must be closed during transportation by cargo vessel.

h. No person may transport a charged cargo 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.

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.

j. MARKING - Each cargo 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 9730" and "One-way travel time_____Hours" or "OWTT_____Hours". The proper OWTT must be determined using the formula: OWTT = MRHT - 24.

9. MODES OF TRANSPORTATION AUTHORIZED: Cargo vessel.

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

SEP 18 2002

Robert A. McGuire
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.

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: pto/sln