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

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

JUN 26 1998

DOT-E 2000
(SECOND REVISION)

EXPIRATION DATE: MAY 31, 2000

(FOR RENEWAL, SEE 49 CFR SECTION 107.109)

1. GRANTEE: Praxair, Inc. (formerly Union Carbide Corp.)
Danbury, CT

2. PURPOSE AND LIMITATION:

a. This exemption authorizes the transportation in commerce of the refrigerated, liquefied gases listed in paragraph 6, below, in a non-DOT specification portable tank or in a DOT Specification 4L cylinder. 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. The safety analyses did not consider the hazards and risks associated with consumer use, use as a component of a transport vehicle or other device, or other uses not associated with transportation in commerce.

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

4. REGULATIONS FROM WHICH EXEMPTED: 49 CFR 173.32, 173.34(a)(1), 173.316, 173.318.

5. BASIS: This exemption is based on the application of Praxair Inc. (formerly Union Carbide Corporation) dated December 15, 1997, and additional information submitted by Praxair, Inc., dated June 25, 1998, submitted in accordance with 49 CFR 107.109.

6. HAZARDOUS MATERIALS (49 CFR 172.101):

Proper Shipping Name/ Hazardous Materials Description	Hazard Class/ Division	Identi- fication Number	Packing Group
Methane, refrigerated liquid *(cryogenic liquid)*, *or* Natural gas, refrigerated liquid *(cryogenic liquid)*	2.1	UN 1972	N/A
Hydrogen, refrigerated liquid *(cryogenic liquid)*	2.1	UN 1966	N/A

7. SAFETY CONTROL MEASURES:

a. PACKAGING - Packaging prescribed is as follows:

(1) A DOT Specification 4L cylinder; or

(2) A non-DOT specification portable tank with a water capacity not exceeding 2200 pounds. The portable tank must consist of a stainless steel inner tank, surrounded by Linde SI-4 insulation material, contained within a carbon steel jacket, and with vacuum maintained in the space between the inner tank and the jacket. The portable tank must be designed and constructed in accordance with the ASME Code, and with Linde model LSH-1000.

b. TESTING - Each portable tank must be reinspected and retested once every five years in accordance with 49 CFR 173.32(e) as prescribed for DOT Specification 51 portable tanks. Pneumatic retesting at one and one-half times the design pressure is authorized in place of the required hydrostatic test.

8. SPECIAL PROVISIONS:

a. Each cylinder and portable tank used in methane service, and each portable tank used in hydrogen service must be plainly marked "DOT-E 2000" on both sides near the middle, in letters at least two (2) inches high on a contrasting background.

b. Maximum permitted filling densities are:

(1) For hydrogen, 6.6%. The relief valve must be set to open at not to exceed 12 psig. Filling must be such that the portable tank will have 2% outage at the safety relief valve or pressure control valve opening condition.

(2) For methane, 38.5% at a pressure control valve setting of 50 psig.

c. Drivers must have been instructed as to necessary safeguards and proper procedure in the event of unusual delay, fire or accident. When loaded, vehicles must not be transported through tunnels.

d. The maximum transport distance authorized for portable tanks must be that which may be accomplished within the holding time of the portable tank, with a margin of 100% of the normal travel time plus 24 hours.

f. Vehicles used must have an open body with sides at least one foot high, and fitted with a protecting rack in which the packagings must be mounted and secured in such a way that they will be held in place even under severe conditions of transportation.

g. 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.

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

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 the 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.

    Each "Hazmat employee", as defined in 49 CFR 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 49 CFR 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. (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 inform the AAHMS, in writing, of any incident involving the package and shipments made under the terms of this exemption.

Issued at Washington, D.C.: JUN 26 1998

for Ann Mazzullo

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.

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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.

Copies of exemptions may be obtained from the AAHMS, U.S. Department of Transportation, 400 7th Street, Washington, DC 20590-0001, Attention: Docket Section, 202-366-5046.

Dist: FHWA
PO: sdc