



U.S. Department  
of Transportation

**Research and  
Special Programs  
Administration**

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

**SEP 15 2004**

DOT-E 12405  
(SIXTH REVISION)

EXPIRATION DATE: August 31, 2006

(FOR RENEWAL, SEE 49 CFR § 107.109)

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

(See Appendix A to this document for a list of additional grantees)

2. PURPOSE AND LIMITATION:

a. This exemption authorizes the transportation in commerce of the hazardous materials described in paragraph 6 below in certain DOT specification seamless steel cylinders. 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. The safety analyses did not consider the hazards and risks associated with consumer use 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 § 173.304a(a)(2) in that a higher permitted filling density is authorized; and § 173.304(b) in that cylinders may be liquid full at temperatures below 130°F.

5. BASIS: This exemption is based on the application of Air Products and Chemicals, Inc. (APCI) dated September 1, 2004, submitted in accordance with § 107.109.

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6. HAZARDOUS MATERIALS (49 CFR § 172.101):

Hazardous Materials Description			
Proper Shipping Name	Hazard Class/ Division	Identification Number	Packing Group
Ethane	2.1	UN1035	N/A
Hexafluoroethane or Refrigerant gas R116	2.2	UN2193	N/A
Hydrogen chloride, anhydrous	2.3	UN1050	N/A Hazard Zone C
Sulfur hexafluoride	2.2	UN1080	N/A

7. SAFETY CONTROL MEASURES:

a. PACKAGING -Prescribed packagings are DOT Specification 3A, 3AA, 3AX, 3AAX, or 3T cylinders with a service pressure of 2400 psig and a test pressure of 4000 psig.

b. OPERATIONAL CONTROLS -

(1) The maximum permitted fill density of each gas is as follows:

Hazardous Material	Maximum Fill Density (See Note 1)
Hydrogen Chloride	73.8
Ethane	37
Sulfur Hexafluoride	149
Hexafluoroethane (Freon 116)	117

**Note 1:** Fill density is defined as the percent ratio of the weight of the gas in a cylinder to the weight of the water that the cylinder will hold at 60°F.

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(2) The pressure in the cylinder may not exceed 95 percent of the cylinders test pressure at 65°C (149°F).

(3) The pressure in the cylinder may not exceed 90 percent of the start-to-discharge pressure of the cylinders pressure relief device at 54.4°C (130°F).

(4) The critical temperature ( $T_c$ ) of each gas must be above 15°C (59°F) and below 65°C (149°F).

(5) The maximum tolerance of the scale must be +/- 0.5%.

(6) For each gas authorized in paragraph 6 of this exemption, the grantee and persons holding party status must take a minimum of one representative cylinder for the purpose of a pressure/temperature monitoring test. The cylinder must be selected from those that are filled for shipment in accordance with paragraph 7.b.(1). The temperature of the gas in each selected cylinder must be uniformly raised with the temperature and pressure being recorded every 10°F until the gas temperature has reached 65°C (149°F). The data collected shall be summarized and presented to the OHMEA prior to renewal of the exemption.

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 modification or change is made to the cylinder or its content 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. Each cylinder must be plainly and durably marked "DOT-E 12405" as specified in § 172.301(c).

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 and 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:
- o All terms and conditions prescribed in this exemption and the Hazardous Materials Regulations, 49 CFR Parts 171-180.
  - o Persons operating under the terms of this exemption must comply with the security plan requirement in Subpart I of Part 172 of the HMR, when applicable.
  - o 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 this 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.:

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Robert A. McGuire  
Associate Administrator for  
Hazardous Materials Safety

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\_\_\_\_\_  
(DATE)

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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: MMT/sln

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The following are hereby granted party status to this exemption based on their application(s) submitted in accordance with § 107.107 or § 107.109, as appropriate:

Company Name City/State	Application Date	Issue Date	Expiration Date
Air Liquide America L.P. Houston, TX	Jan 30, 2003	Mar 05, 2003	Dec 31, 2004
Airgas, Inc. Cheyenne, WY	Jan 05, 2003	Jan 21, 2003	Dec 31, 2004
Matheson Tri-Gas Inc. East Rutherford, NJ	Feb 24, 2003	Mar 13, 2003	Dec 31, 2004



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Robert A. McGuire  
Associate Administrator for  
Hazardous Materials Safety

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Date