



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

MAY 14 2003

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

DOT-E 11859  
(FOURTH REVISION)

EXPIRATION DATE: April 30, 2005

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. GRANTEE: Carleton Technologies, Inc.  
Orchard Park, NY
2. PURPOSE AND LIMITATIONS:
  - a. This exemption authorizes the manufacture, mark, sale and use of a missile gas storage system consisting of a non-DOT specification cylinder equipped with a pyrotechnic pressure relief device for the transportation in commerce of nitrogen. This exemption provides no relief from the Hazardous Materials Regulations (HMR) other than as specifically stated herein.
  - b. An exemption authorization to manufacture, mark, sell, and transport only represents certification of safety for a package when it is an article of commerce in transportation. 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 §§ 173.302a(a) and 175.3 in that the prescribed cylinder is not authorized, and § 173.301(f) in that the pyrotechnic safety relief device is not authorized, except as specified herein.
5. BASIS: This exemption is based on the application of Carleton Technologies, Inc. dated April 1, 2003, submitted in accordance with § 107.109.

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6. HAZARDOUS MATERIALS (49 CFR § 172.101):

<b>Proper Shipping Name Hazardous Materials Description</b>	<b>Hazard Class/ Division</b>	<b>Identi- fication Number</b>	<b>Packing Group</b>
Nitrogen, compressed	2.2	UN1066	N/A

A missile gas storage system or component which contains a quantity of pyrotechnic materials must be classed and approved as provided for in § 173.56. If the pyrotechnic material augments the volume of the gas in the cylinder, or in any way enhances the performance of the compressed gas, the device must be tested in the same configuration as when shipped.

7. SAFETY CONTROL MEASURES:

a. PACKAGING - Prescribed packaging is described as a missile gas storage system. The packaging consists of a non-DOT specification non-refillable welded steel cylinder equipped with a Division 1.4S pyrotechnic pressure relief device. The device begins releasing pressure at a temperature of 365°F maximum, corresponding to a maximum pressure of 16,000 psig. The packaging must comply with Carleton drawing number B41113-5 or B41113-7 on file with the Office of Hazardous Materials Exemptions and Approvals (OHMEA) and with DOT Specification 39 (§§ 178.35 and 178.65) except as follows:

§ 178.35(e) *Safety devices.*

Applies except that pyrotechnic pressure relief device is authorized.

§ 178.65(a) *Type, size, service pressure, and test pressure.*

(1) Maximum size is 14 cubic inches, and maximum service pressure is 8,750 psig.

§ 178.65(b) *Material.* The cylinder must be constructed of PH13-8Mo or 17-4PH stainless steel.

§ 178.65(f) *Pressure tests.*

(1) \* \* \*

(2) One cylinder from the beginning of each lot, and one taken from each 250 or less successively produced within the lot thereafter, must be hydrostatically tested to at least 2.0 times the test pressure without failure. All cylinders tested under this paragraph must be scrapped. The entire lot must be rejected (see paragraph (h) of this section) if:

- (i) \* \* \*
- (ii) \* \* \*
- (iii) Not Applicable
- (iv) \* \* \*

(3) A "lot" is defined as the quantity of cylinders fabricated from the same material, manufactured by the same process and heat treated in the same equipment under the same conditions of time, temperature, and atmosphere and may not exceed a quantity of 250.

§ 178.65(g) *Flattening test.*

One sample ring must accompany each lot. The sample ring must be from the same material lot as the cylinders. The sample ring must be subjected to a flattening test as follows:

- (1) The flattening test must be made on the sample ring.
- (2) \* \* \*
- (3) Flattening between flat plates is authorized.
- (4) Test rings must not crack when flattened so that their outer surfaces are not more than 15 times wall thickness apart.

§ 178.65(i) *Markings.*

- (1) \* \* \*

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(2) Required markings are as follows:

(i) Each cylinder must be marked "DOT-E 11859" in lieu of "DOT-39".

b. TESTING - All welds, except the fill tube resistance welds, must be 100% radiographically inspected and liquid penetrant inspected. Fill tube resistance welds must be tested as specified on Carleton drawing number B41113-7.

c. OPERATIONAL CONTROLS Cylinders must be shipped in strong outside packaging in accordance with § 173.301(a)(9).

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 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.

9. MODES OF TRANSPORTATION AUTHORIZED: Motor vehicle, rail freight, and cargo aircraft only.

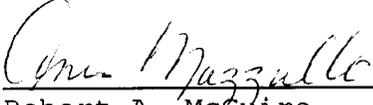
10. MODAL REQUIREMENTS: A current copy of this exemption must be carried aboard each aircraft used to transport packages covered by this exemption. The shipper shall furnish a copy of this exemption to the air carrier before or at the time the shipment is tendered.
11. COMPLIANCE: Failure by a person 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, Parts 171-180.
  - 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 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.

  
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Robert A. McGuire  
Associate Administrator for  
Hazardous Materials Safety

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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: CWF/alb