U.S. Department
of Transportation

**Research and
Special Programs
Administration**

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

APR - 6 2004

DOT-E 11899
(SIXTH REVISION)

EXPIRATION DATE: February 28, 2006

(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, marking, sale and use of a missile gas storage system consisting of a limited life, non-DOT specification cylinder equipped with a pyrotechnic activated pressure relief device for the transportation of nitrogen in commerce. This exemption provides no relief from any regulation 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.

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

4. REGULATIONS FROM WHICH EXEMPTED: 49 CFR § 173.302a(a)(1) and § 175.3 in that the prescribed non-DOT specification cylinder is not an authorized packaging, except as specified herein.

5. BASIS: This exemption is based on the applications of Carleton Technologies Inc., dated March 4, 2004 submitted in accordance with § 107.109.

6. HAZARDOUS MATERIALS (49 CFR § 172.101):

Hazardous materials description -- proper shipping name	Hazard Class/ Division	Identi-fication Number	Packing Group
Nitrogen, compressed	2.2	UN1066	N/A

Note: 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. PACKAGING(S) and SAFETY CONTROL MEASURES:

a. PACKAGING - Packaging prescribed is described as a missile gas storage system. The packaging consists of a non-DOT specification limited life welded titanium cylinder equipped with a Division 1.4S pyrotechnic pressure relief device. The device begins releasing pressure at a maximum temperature of 365°F, corresponding to a maximum pressure of 11,700 psig. The packaging must conform with Carleton Technologies Inc.'s drawing B41592-6 (Revision E) technical specifications and performance data on file with the Office of Hazardous Materials Exemptions and Approvals(OHMEA), and must be fabricated in accordance with DOT Specification 39 cylinder (§ 178.65) except as follows:

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

(1) Maximum size is 9.0 cubic inches and maximum service pressure is 6,350 psig.

(2) * * *

§ 178.65(b) *Material.*

The cylinder must be constructed of titanium (Ti-6Al-4V or Ti-3Al-2.5V).

§ 178.65(c) *Manufacture.*

* * *

(4) Welding procedures and operation must be qualified in accordance with MIL-STD-2219 and MIL-STD-1595.

§ 178.65(f) *Pressure tests.*

(1) Each cylinder must be tested at an internal pressure of at least 1.5 times the test pressure and must be held at that pressure for at least 30 seconds.

(2) * * *

(i) * * *

(ii) A failure initiates in a braze, a weld, or a heat affected zone at a pressure less than 18,750 psi.

* * *

(3) A "lot" is defined as the quantity of cylinders successively produced per production shift having identical size, design, construction, material, heat treatment, finish and quality.

§ 178.65(g) *Flattening test.*

(1) One sample ring representative of the cylinder must accompany each lot. The sample ring must be from the same material and be subjected to the same heat treatment as the lot of cylinders.

(2) The sample ring representative of the cylinder may be flattened. The sample ring may not include the heat affected zone or any weld.

(3) Flattening between flat plates is authorized.

(4) Sample ring may not crack when flattened so that outer surfaces are not more than nine times wall thickness apart.

(5) If the sample ring cracks when subjected to specified flattening test, the lot of cylinders represented by the test must be rejected (see §178.65(h)).

§ 178.65(i) Markings.

Applies except that each cylinder must be marked "DOT-E 11899" in lieu of "DOT-39"; and that "NRC" is not required to be marked.

b. OPERATIONAL CONTROLS:

(1) All welded joints must be 100% radiographically examined.

(2) A copy of the inspector's report required by § 178.35(g) for the first lot of cylinders must besubmitted to the OHMEA prior to first shipment.

(3) Cylinders must be shipped in strong outside packagings in accordance with § 173.301(a)(9).

(4) Each cylinder may be filled a maximum of 25 times to a pressure not exceeding 6,350 psig, provided each cylinder is inspected and proof tested to 1.5 times the test pressure prior to filling.

(5) New Construction is not authorized after April 2, 2004.

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 modifications or changes are made to the package 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 copy of this exemption must be carried aboard each aircraft used to transport packages covered by this exemption. The shipper shall furnish a current 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:

- All terms and conditions prescribed in this exemption and the Hazardous Materials Regulations, Parts 171-180.
- 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.
- 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 at Washington, D.C.:

APR - 6 2004
(DATE)

Robert A. McGuire
Associate Administrator for
for Hazardous Materials Safety

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: CWFREEMAN/KFW/sln