U.S. Department
of Transportation

**Research and
Special Programs
Administration**

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

DEC 21 2004

DOT-E 11378
(SIXTH REVISION)

EXPIRATION DATE: November 30, 2006

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. GRANTEE: National Aeronautics and Space Administration (NASA) Washington, D.C.

2. PURPOSE AND LIMITATION:

a. This exemption authorizes the use of stainless steel non-DOT specification cylinders conforming to all regulations applicable to DOT specification 4BW, except as specified herein, for transporting materials authorized under this exemption. 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 §§ 173.40(a), 173.201, 173.226, and 173.227 only in that the prescribed cylinders are not authorized, except as specified herein; and § 173.40(c).

5. BASIS: This exemption is based on the application of National Aeronautics and Space Administration dated December 1, 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**
Dimethylhydrazine, unsymmetrical	6.1	UN1163	I Hazard Zone B
Hydrazine, anhydrous *or* Hydrazine aqueous solutions *with more than 64 percent hydrazine, by mass*	8	UN2029	I
Methylhydrazine	6.1	UN1244	I Hazard Zone A
Toxic liquids, flammable, organic, n.o.s., *inhalation hazardous, Packing Group* I, Zone B (50% anhydrous hydrazine and 50% unsymmetrical dimethylhydrazine)	6.1	UN2929	I Hazard Zone B

7. SAFETY CONTROL MEASURES:

a. PACKAGING - Packagings prescribed are non-DOT specification 5 and 30 gallon stainless steel cylinders which were designed, manufactured, and tested according to ASME Boiler and Pressure Vessel Code Section VIII for lethal substances. Cylinders must be constructed in conformance with NASA Kennedy Space Center procurement specification 81K04002 and with DOT specification 4BW (§§ 178.35 and 178.61) except as follows:

§ 178.35(a)(2) *Inspection by whom and where.*

Inspections and verifications must have been performed by a National Board Authorized Inspector.

§ 178.35(e) *Safety relief devices.*

Cylinders may not be equipped with safety relief devices.

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§ 178.35(f) *Markings.*

Applies except that each cylinder be marked with "DOT-E 11378" instead of "DOT-4BW".

§ 178.61(b) *Authorized steel.*

(1) Material of construction must be SA240 type 304L.

(2) Heads are torispherical in shape. The knuckle radius must be equal to 6% of the inside crown radius and the inside crown radius must be equal to the outside diameter of the skirt.

§ 178.61(d) *Manufacture.*

(1) * * *

(2) Circumferential seam welds must be full penetration butt welds with full 100% radiograph inspection.

§ 178.61(g) *Heat treatment.*

Cylinders need not be heat treated.

§ 178.61(i) *Hydrostatic test.*

(1), (2), (3), and (4) * * *

(5) The first finished cylinder out of each lot of 500 or less successively produced must be hydrostatically tested to 4 times service pressure without bursting.

§178.61(j) *Physical tests.*

Physical specimen tests are not required.

Prescribed packagings must be in conformance with § 173.40 except as follows:

§ 173.40(c)(1)- Connections must be straight threads with controlled root radius straight threads (thread form symbol UNJ) in accordance with Military Specification MIL-S-8879. Female ports must be UNJ straight threads and must meet Military Standard MS33649. The sealing gasket must be

polytetraflouroethylene preformed packing per Military Standard MS9956 or ethylene propylene rubber preformed packing per NAS1613, Aerospace Industries Association of America Inc. MS9956 preformed packing must be deformed in assembly only once and any reassembly requires a new preformed packing.

§ 173.40(c)(2) Valves must be quarter turn ball valves with secondary stem containment stem seals of a NASA approved design. Prior to filling, or at a minimum frequency of one year, a bubble leak check must be performed on all mechanical joints at 200 psig. Prior to cylinder refill, or at a five year frequency, whichever is greater, valves must have all softgood materials (such as seats, packing, and o-rings) replaced, valves must be cleaned, and valves must be leak tested at rated pressure at all joints and across the seat.

b. TESTING - Cylinders must be retested in accordance with the requirements of § 173.34 applicable to DOT 4BW cylinders.

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. No new construction of packagings authorized under this exemption is authorized.

9. MODES OF TRANSPORTATION AUTHORIZED: Motor vehicle, cargo vessel.

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

- All terms and conditions prescribed in this exemption and the Hazardous Materials Regulations, 49 CFR 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 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.:

DEC 21 2004

(DATE)

for Robert A. McGuire
Associate Administrator 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: KFW/sln