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

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

DOT-E 10402
(SIXTH REVISION)

MAR 23 2001

EXPIRATION DATE: February 28, 2003

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. GRANTEE: Astrotech Space Operations, Inc.
Titusville, Florida

2. PURPOSE AND LIMITATION:

a. This exemption authorizes the transportation in commerce of Dinitrogen tetroxide, in certain non-DOT specification packagings. 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.

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

4. REGULATIONS FROM WHICH EXEMPTED: 49 CFR §§ 173.40(c)(1) and (c)(2) as described in paragraph 7 below and § 173.336(a) in that non-DOT specification packages are authorized.

5. BASIS: This exemption is based on the application of Astrotech Space Operations, Inc. dated March 16, 2001 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
Dinitrogen tetroxide	2.3	UN1067	N/A

7. SAFETY CONTROL MEASURES:

a. PACKAGING - Packagings prescribed are as follows:

(1) A stainless steel pipe column approximately 8 inches in diameter and 4 feet long, designed and constructed to the requirements of the ASME Code for unfired pressure vessels. The pipe column is equipped with end caps, inlet, outlet and drain stop valves; pressure relief valves; a 3 micron millipore 12 inch filter, Model YY 16-012-14; interconnecting fittings and piping; all assembled as shown in photographs submitted with the application. This assembly is overpacked in a non-DOT specification plywood box which in turn is securely strapped to the backstop and bed of a flatbed truck as shown in sketches also submitted with the application; or

(2) Two (2) stainless steel DOT-3A1800 cylinders with a capacity of one (1) liter. The cylinders do not have a tapered-threaded connection directly to the cylinder; packless valves with non-perforated diaphragm; and secondary seal as specified in § 173.40(c)(1) and (c)(2). The cylinders are overpacked in a UN1A2 drum. The cylinders must be loaded by weight so that they conform with the requirements in § 173.40(b).

b. TESTING - DOT Specification 3A1800 cylinders must be retested and inspected as required in § 173.34(e).

c. OPERATIONAL CONTROLS -

(1) Shipment must be made between the Astrotech facilities in Titusville, Florida and the Kennedy Space Center using only the public roads specified in the application.

(2) Prior to any shipment of the package described in paragraph 7.a.(1) above, all outlets and inlets must be capped or plugged, pressure relief valves must be rendered inoperative, and the Modular Sieve Column, piping, and filter assembly must be drained so that the residual amount of Dinitrogen tetroxide contained therein is 10 pounds or less.

(3) During transport of the package described in paragraph 7.a.(1) and 7.a.(2), no other hazardous materials may be transported on the motor vehicle.

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(4) Requirements of NASA document KHB 1700.7 entitled "Space Transportation System Payload Ground Safety Handbook" and USAF document ESMCR 127-1 entitled "Range Safety" must be met as appropriate.

(6) Local emergency rescue personnel, hospital medical staff, fire department, and hazardous materials response teams must be trained and equipped to handle accidents including leakage of liquid propellant during transport. These local emergency response agencies must be notified in advance of transport operations and effective communication must be in effect during transportation.

8. SPECIAL PROVISIONS:

a. The shipper must comply with all provisions of this exemption, and all other applicable requirements contained in 49 CFR Parts 100-180.

b. MARKING - In addition to other DOT requirements, the outside package must be marked "INHALATION HAZARD" in letters at least 2 inches in height on at least 2 opposite sides, and must be marked on these same sides, in letters at least 2 inches in height on a contrasting background "DOT-E 10402."

9. MODES OF TRANSPORTATION AUTHORIZED: Motor vehicle.

10. MODAL REQUIREMENTS:

a. A current copy of this exemption must be carried aboard each motor vehicle used to transport packages covered by this exemption.

b. Drivers must have been instructed as to necessary safeguards and proper procedures in the event of unusual delay, fire, or other accident.

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.

- 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 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.:

MAR 23 2001

Robert A. McGuire
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.

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, SW, Washington, DC 20590-0001, Attention: Records Center, 202-366-5046.

PO: sln