U.S. Department
of Transportation

**Research and
Special Programs
Administration**

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

DOT-E 10428 (EXTENSION)
SECOND REVISION December 7, 1994

In accordance with 49 CFR 107.109 of the Department of Transportation (DOT) Hazardous Materials Regulations DOT-E 10428 is hereby extended for the party(ies) listed below by changing the expiration date in paragraph 10 to July 31, 1998. This change is effective from the issue date of this extension. All other terms of the exemption remain unchanged.

This extension applies only to party(ies) listed below based on the application(s) received in accordance with 49 CFR 107.109. This extension constitutes a necessary part of this exemption and must be attached to it.

Marilyn E. Morris
for Alan I. Roberts
Associate Administrator
for Hazardous Materials Safety

November 27, 1996
(DATE)

Dist: FHWA

EXEMPTION HOLDER	APPLICATION DATE
Astrotech Space Operations, L.P. Silver Spring, MD	June 4, 1996

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

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

DOT-E 10428
(SECOND REVISION)

DEC 7 1994

1. Astrotech Space Operations, L.P., Silver Spring, Maryland, is hereby granted an exemption from certain provisions of this Department's Hazardous Materials Regulations to transport in commerce the packages described herein of the respective hazardous materials listed in paragraph 3 below subject to the limitations and special requirements specified herein. This exemption authorizes shipment of propellant transfer carts each containing a hazardous material in specially designed non-DOT specification ground support transport containers, and provides no relief from any regulation other than as specifically stated.

2. BASIS. This exemption is based on Astrotech's July 29, 1994 application, submitted in accordance with 49 CFR 107.105.

3. HAZARDOUS MATERIALS (Descriptor and class). Dinitrogen tetroxide, liquefied, Classed as a Division 2.3; Methylhydrazine, classed as Division 6.1; Hydrazine anhydrous classed as a Class 3 material.

4. PROPER SHIPPING NAME (49 CFR 172.101). Dinitrogen tetroxide, liquefied; Hydrazine anhydrous; and Methylhydrazine, as appropriate.

5. REGULATION AFFECTED. 49 CFR 173.243, 173.226, and 173.336.

6. MODE OF TRANSPORTATION AUTHORIZED. Motor vehicle.

7. SAFETY CONTROL MEASURES.

a. Packagings prescribed consist of propellant transfer carts which are used to load oxidizers and/or fuel onboard spacecraft. Each consists of a stainless steel or titanium container mounted on a load cell with associated piping, a metal enclosure, suspension components, and jack-supports, all as depicted in Figures 2-2, 2-6, 2-7, 3-1, and 3-2, and in Tables 3-1 and 3-2, submitted as part of the application. Packagings must be designed and constructed in accordance with requirements of NASA document KHB 1700.7 entitled "Space Transportation System Payload Ground Safety Handbook, " and USAF document ESMCR 127-1 entitled "Range Safety". Any pressure relief valves in transfer cart piping must be isolated by manual valves during transport.

These packagings shall be transported on a flatbed truck or flatbed trailer, with jack-supports extended to off-load the weight of the cart from the suspension system, with cart wheels blocked, and with the cart firmly attached to the transport vehicle by means of webbed strapping, as described in the application. The propellant/oxidizer tank must be bolted securely to the frame of the propellant transfer cart during transit.

b. The propellant transfer cart may not contain more than the following quantities of hazardous materials:

(1) Anhydrous hydrazine, 600 pounds;
(2) Methylhydrazine, 2324 pounds; and
(3) Nitrogen tetroxide, 3792 pounds.

8. SPECIAL PROVISIONS.

a. Each transport operation must be conducted in accordance with the requirements of ESMCR 127-1, Section 5.6.4 entitled "Convoy Operations", e.g., fore and aft escort must be provided, and all convoy elements must be in radio contact with each other throughout the convoy operation.

b. Shipments must be made between the Astrotech facilities in Titusville, Florida and the Kennedy Space Center using only the public roads specified in the application.

c. Local emergency rescue personnel, hospital medical staff, fire department, and hazardous material response team 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 the transport operation and effective communication must be in effect during the transport operation.

d. When the hazardous material being shipped meets the criteria set forth in 49 CFR 173.3a, 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 10428."

e. 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.

f. A copy of this exemption must be carried aboard each motor vehicle used to transport the package covered by this exemption.

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

9. 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. (49 CFR 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 incidents involving the package and shipments made under the terms of this exemption.

10. EXPIRATION DATE. July 31, 1996.

Issued at Washington, D.C.

DEC 7 1994

(DATE)

Alan I. Roberts
Associate Administrator
for Hazardous Materials Safety

Address all inquiries to: Associate Administrator for Hazardous Materials Safety, Research and Special Programs Administration, U.S. Department of Transportation, Washington, D.C. 20590. Attention: DHM-31.

The original of tis 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.

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