



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

NOV 7 2003

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

DOT-E 12643
(THIRD REVISION)

EXPIRATION DATE: October 31, 2005

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. GRANTEE: Northrop Grumman Space Technology (NGST)
(FORMER GRANTEE: TRW Space and Electronics Group)
Redondo Beach, CA
2. PURPOSE AND LIMITATION:
 - a. This exemption authorizes the transportation in commerce of certain non-DOT specification refrigeration systems described as pulse tube coolers containing helium. 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 §§ 173.302 and 175.3 in that the refrigeration system is not an authorized packaging, except as specified herein.
5. BASIS: This exemption is based on the application of NGST dated October 30, 2003 submitted in accordance with § 107.109 and additional information dated October 31, 2003.

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6. HAZARDOUS MATERIALS (49 CFR § 172.101):

Proper Shipping Name/ Hazardous Materials Description	Hazard Class/ Division	Identi- fication Number	Packing Group
Helium, compressed	2.2	UN1046	N/A

7. SAFETY CONTROL MEASURES:

a. PACKAGING - Packaging prescribed is a non-DOT specification, non-refillable, hermetically sealed, refrigeration system described as a pulse tube cooler (PTC). The PTC is not equipped with a pressure relief device. In the event of extreme temperatures, the PTC is designed to relieve pressure through its seals to prevent bursting. The PTC must conform with NGST drawing #C455995 and standard 65 series Pulse Tube Cryocooler per Drawing 455673 on file with the Office of Hazardous Materials Exemptions and Approvals (OHMEA). The PTC must be designed and tested in conformance with MIL-STD 1522 "Standard General Requirements for Safe Design and Operation of Pressurized Missile and Space Systems". The material of construction is aluminum alloy 2219. Additionally, the PTC must conform with the following:

Maximum service pressure: 500 psig
(maximum expected operating pressure)

Minimum design burst pressure: 1250 psig

Maximum volume: 598 cc

b. TESTING - Each pulse tube cooler must be proof pressure tested to at least 750 psig before shipment.

c. OPERATIONAL CONTROLS -

(1) The pulse tube cooler must be shipped inside a strong, foam-filled, plastic shipping container in conformance with Eardigg drawing #1413-0505 or NGST drawing SK8375, both of which are on file with the OHMEA.

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(2) Emergency response information provided with the shipment and available via an emergency response telephone number must indicate that the pulse tube coolers are not fitted with pressure relief devices and must provide appropriate guidance in the event of fire.

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. Each outside packaging must be marked "DOT-E 12643" in letters and numbers as specified in § 172.302(b).

9. MODES OF TRANSPORTATION AUTHORIZED: Motor vehicle, cargo aircraft only, and passenger-carrying aircraft (see § 175.85(a)).

10. MODAL REQUIREMENTS: A current copy of this exemption must be carried aboard each aircraft or motor vehicle used to transport packages covered by this exemption. The shipper must 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, 49 CFR Parts 171-180.

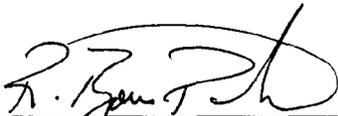
- o Registration required by § 107.601 et seq., when applicable.

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.:



Robert A. McGuire
Associate Administrator for
Hazardous Materials Safety

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(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.

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/AM