

November 14, 2018



U.S. Department
of Transportation

East Building, PHH – 30
1200 New Jersey Avenue, Southeast
Washington, D.C. 20590

**Pipeline and Hazardous
Materials Safety Administration**

DOT-SP 12643
(TWELFTH REVISION)

EXPIRATION DATE: 2022-10-31

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. GRANTEE: Northrop Grumman Systems Corporation
Aerospace Systems
Redondo Beach, CA
2. PURPOSE AND LIMITATION:
 - a. This special permit authorizes the transportation in commerce of certain non-DOT specification refrigeration systems described as pulse tube coolers containing helium. This special permit provides no relief from the Hazardous Materials Regulations (HMR) other than as specifically stated herein. The most recent revision supersedes all previous revisions.
 - b. The safety analyses performed in development of this special permit only considered the hazards and risks associated with transportation in commerce.
 - c. No party status will be granted to this special permit.
3. REGULATORY SYSTEM AFFECTED: 49 CFR Parts 106, 107 and 171-180.
4. REGULATIONS FROM WHICH EXEMPTED: 49 CFR § 173.302a in that the refrigeration system is not an authorized packaging, except as specified herein.
5. BASIS: This special permit is based on the application of Northrop Grumman Systems Corporation dated October 30, 2018, submitted in accordance with § 107.109.

November 14, 2018

6. HAZARDOUS MATERIALS (49 CFR § 172.101):

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

7. SAFETY CONTROL MEASURES:

a. PACKAGING: Prescribed packaging 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 to NGAS drawing 455673 for the standard 65 series Pulse Tube Cryocooler, drawing 457157 for the HEC-HPT Pulse Tube Cryocooler, drawing 459380 for the ABI Pulse Tube Cryocooler, drawing 461825 or D461825 for the HEC - NuVision Pulse Tube Cryocooler, and drawing 457159 for the 65 B Series - PTC - HEC Pulse Tube Cryocooler on file with the Office of Hazardous Materials Safety Approvals and Permits Division (OHMSAPD). 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 to the following:

Maximum service pressure: (maximum expected operating pressure)	500 psig
Minimum design burst pressure:	1250 psig
Maximum volume:	Drawing 455673 598 cc
	Drawing 457157 1100 cc
	Drawing 459380 980 cc
	Drawing 457159 598 cc
	Drawing 461825 1100 cc
	Drawing D461825 1100 cc

November 14, 2018

b. TESTING: Each pulse tube cooler must be proof pressure tested to at least 915 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 Hardigg drawing #1413-0505 or NGAS drawing SK8375 for the 455673 assemblies, NGAS drawings H8942 for the 457157 assemblies, NGAS drawings H9235 and H9236 for the 459380 assemblies, NGAS drawings SKWW6832 for the 461825 and D461825 assemblies, and NGAS drawing SKWW6844 for the 457159 assemblies. All drawings must be on file with the OHMSAPD.

(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 special permit who receives a package covered by this special permit may reoffer it for transportation provided no modification or change is made to the package and it is reoffered for transportation in conformance with this special permit and the HMR.

b. A current copy of this special permit must be maintained at each facility where the package is offered or reoffered for transportation.

c. Each outside packaging must be marked "DOT-SP 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 § 175.75(b)).

10. MODAL REQUIREMENTS: A current copy of this special permit must be carried aboard each aircraft or motor vehicle used to transport packages covered by this special permit. The shipper must furnish a copy of this special permit to the air carrier before or at the time the shipment is tendered.

November 14, 2018

11. COMPLIANCE: Failure by a person to comply with any of the following may result in suspension or revocation of this special permit 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 special permit and the Hazardous Materials Regulations, 49 CFR Parts 171-180.
- o Persons operating under the terms of this special permit must comply with the security plan requirement in Subpart I of Part 172 of the HMR, when applicable.
- 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 special permit must receive training on the requirements and conditions of this special permit in addition to the training required by §§ 172.700 through 172.704.

No person may use or apply this special permit, including display of its number, when this special permit has expired or is otherwise no longer in effect.

Under Title VII of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU)- 'The Hazardous Materials Safety and Security Reauthorization Act of 2005' (Pub. L. 109-59), 119 Stat. 1144 (August 10, 2005), amended the Federal hazardous materials transportation law by changing the term "exemption" to "special permit" and authorizes a special permit to be granted up to two years for new special permits and up to four years for renewals.

12. REPORTING REQUIREMENTS: Shipments or operations conducted under this special permit are subject to the Hazardous Materials Incident Reporting requirements specified in 49 CFR 171.15 Immediate notice of certain hazardous materials

November 14, 2018

incidents, and 171.16 Detailed hazardous materials incident reports. In addition, the grantee(s) of this special permit must notify the Associate Administrator for Hazardous Materials Safety, in writing, of any incident involving a package, shipment or operation conducted under terms of this special permit.

Issued in Washington, D.C.:



for William Schoonover
Associate Administrator for Hazardous Materials Safety

Address all inquiries to: Associate Administrator for Hazardous Materials Safety, Pipeline and Hazardous Materials Safety Administration, Department of Transportation, Washington, D.C. 20590. Attention: PHH-31.

Copies of this special permit may be obtained by accessing the Hazardous Materials Safety Homepage at http://hazmat.dot.gov/sp_app/special_permits/spec_perm_index.htm Photo reproductions and legible reductions of this special permit are permitted. Any alteration of this special permit is prohibited.

PO: CWF/SG