



U.S. Department
of Transportation

**Pipeline and Hazardous
Materials Safety
Administration**

January 25, 2024

1200 New Jersey Avenue, SE
Washington, DC 20590

DOT-SP 11818
(TWENTY-SECOND REVISION)

(FOR RENEWAL, SEE 49 CFR 107.109)

1. GRANTEE: (See individual authorization letter)
2. PURPOSE AND LIMITATION:
 - a. This special permit authorizes the transportation in commerce of certain non-DOT specification containers containing certain Division 2.1, 2.2, and 2.3 liquefied and compressed gases and other hazardous materials identified in paragraph 6 of the special permit. 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. Unless otherwise stated herein, this special permit consists of the special permit authorization letter issued to the grantee together with this document.
 - d. This special permit serves as an “exemption” as defined in 1;3.1.1 of the ICAO TI and as a “Competent Authority Approval” as defined under 49 CFR § 107.1.
 - e. This special permit serves as an exemption to the ICAO Technical Instructions (ICAO TI) for the transportation of UN1005, Ammonia, anhydrous aboard cargo aircraft. For international flights, the ICAO TI may require exemption authorization by the States of origin, transit, over flight, and destination of the consignment, as well as the State of the air operator.
 - f. This special permit in no way affects the need to obtain any required authorizations from other agencies of the United States Government or from the competent authorities of countries of origin, transit, and destination.
3. REGULATORY SYSTEM AFFECTED: 49 CFR Parts 106, 107 and 171-180.

Tracking Number: 2023104021

4. REGULATIONS FROM WHICH EXEMPTED: 49 CFR 172.101 Column (9B) in that lithium batteries may exceed 35 kg, § 173.301(f) in that containers are not fitted with pressure relief devices, as specified herein, §§ 173.302a(a)(1), and 173.304a(a)(2) and Packing Instruction 200 of the ICAO TI in that non-DOT specification packagings are authorized, as specified herein, Column (9B) of the § 172.101 Hazardous Materials Table and Columns 12 and 13 in Table 3-1 of the ICAO TI in that anhydrous ammonia may be transported aboard cargo-only aircraft, as specified herein, and the “Q” value requirements for anhydrous ammonia in 4;1.1.9(e) of the ICAO TI are waived.
5. BASIS: This special permit is based on the application of Raytheon Company dated October 2, 2023, submitted in accordance with § 107.105 and the public proceeding therein.
6. HAZARDOUS MATERIALS (49 CFR 172.101):

| Hazardous Materials Description | | | |
|--|-------------------------------|------------------------------|----------------------|
| Proper Shipping Name | Hazard Class/ Division | Identification number | Packing Group |
| Ammonia, anhydrous | 2.2/2.3* | UN1005 | N/A |
| Ethane | 2.1 | UN1035 | N/A |
| Helium, compressed | 2.2 | UN1046 | N/A |
| Methane, compressed <i>or</i> Natural gas, compressed (<i>with high methane content</i>) | 2.1 | UN1971 | N/A |
| Nitrogen trifluoride | 2.2 | UN2451 | N/A |
| Propane <i>see also</i> Petroleum gases, liquefied | 2.1 | UN1978 | N/A |
| Propylene <i>see also</i> Petroleum gases, liquefied | 2.1 | UN1077 | N/A |
| Toluene | 3 | UN1294 | II |
| Lithium ion batteries** | 9 | UN3480 | N/A |
| Lithium ion batteries contained in equipment | 9 | UN3481 | N/A |
| Xenon, compressed | 2.2 | UN2036 | N/A |

*Division 2.3 for international transportation. Division 2.2 as an alternate when only domestic transportation is involved.

**Packaging and transportation must be in accordance with the International Civil Aviation Organization's Technical Instructions for the Safe Transportation of Dangerous Goods by Air (ICAO TI).

7. SAFETY CONTROL MEASURES:

a. PACKAGING: Packagings prescribed are non-DOT specification containers which are installed in spacecraft or components of spacecraft and overpacked in a wood or metal box, transported in the Boeing owned enclosed trailer (Asset # 2-0402) or transported in a military-grade system tested to MIL-STD-810. The non-DOT specification containers are without valves or pressure relief devices and described as follows:

(1) Heat pipes or variable conductance heat pipes, constructed of axially grooved tubing (aluminum alloy 6063 or 300 series stainless steel or combination thereof) with an end cap and fill tube welded to opposing ends, not to exceed 1 liter in volume.

(2) Capillary pumped loops constructed of 6061-T6 aluminum or 300 series stainless steel or combination thereof, not to exceed 144 inches in length and 100 inches wide, and not to exceed 4 liters in volume.

(3) Reservoirs constructed of 6061 aluminum or 300 series stainless steel, not to exceed 4 liters in volume. The maximum size of the reservoir is 6 inches in diameter and 24 inches in length.

(4) Composite Overwrapped Pressure Vessels (COPV) constructed with aluminum liners and carbon resin overwrap must be designed and tested to meet AFSPCMAN91-710, Volume 3, Chapter 12. Each COPV has a volume of 20.5 L and will hold no more than 31 pounds (14 kg) of Xenon. The maximum expected operating pressure (MEOP) of the COPV is 3,000 psia. Proof test pressure is 1.5 times MEOP and the design burst pressure must be at least 4 times the MEOP.

b. TESTING: Welds must be tested using an appropriate non-destructive examination (NDE) technique described in ASTM-E1742, NAS1514, (Air Force Space Command Manual) AFSPCMAN 91-910 Vol 3 or an equivalent specification. Each non-DOT specification container must be pneumatically tested to pressure 1.5 times the vapor pressure of the lading at 100 °C (212 °F) without failure and must have minimum burst pressure of at least 1,400 psig.

c. OPERATIONAL CONTROLS:

- (1) Each heat pipe may not contain more than 0.35 pound of anhydrous ammonia.
- (2) At 54.4 °C (130 °F), the design burst pressure of the heat pipes must be at least 4 times the vapor pressure of the lading.
- (3) Emergency response information provided with the shipment and available via an emergency response telephone number must indicate that the heat pipes are not fitted with pressure relief devices and provide appropriate guidance in case receptacles are exposed to 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 modifications or changes are 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. MARKING: The all-metal container containing the FOS must be marked on two sides in letters at least 2 inches high on a contrasting background "DOT-SP 11818".
- d. Transportation of Division 2.3 materials (gases which are toxic by inhalation) are not authorized aboard aircraft unless specifically authorized in writing by the Office of Hazardous Materials Safety, as an ICAO TI exemption, or as provided in Special Provision A2 of the ICAO TI.

9. MODES OF TRANSPORTATION AUTHORIZED: Motor vehicle, cargo vessel and cargo-only aircraft.

10. MODAL REQUIREMENTS: A current copy of this special permit must be carried aboard each cargo vessel, aircraft or motor vehicle used to transport packages covered by this special permit. The shipper must furnish a current copy of this special permit 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 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 the 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 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 Material Safety Administration, U.S. Department of Transportation, East Building PHH-13, 1200 New Jersey Avenue, Southeast, Washington, D.C. 20590.

Copies of this special permit may be obtained by accessing the Hazardous Materials Safety Homepage at <https://www.phmsa.dot.gov/approvals-and-permits/hazmat/special-permits-search>. Photo reproductions and legible reductions of this special permit are permitted. Any alteration of this special permit is prohibited.

PO: TG/AS