



U.S. Department
of Transportation

**Pipeline and Hazardous
Materials Safety
Administration**

May 16, 2024

1200 New Jersey Avenue, SE
Washington, DC 20590

DOT-SP 12396
(ELEVENTH REVISION)

EXPIRATION DATE: 2028-04-30

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. GRANTEE: National Aeronautics and Space Administration
Washington, D.C.
2. PURPOSE AND LIMITATION:
 - a. This special permit authorizes the transportation in commerce of low production lithium metal batteries packed with equipment (a SAFER assembly) containing certain non-DOT specification cylinders filled with compressed nitrogen gas. 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. Party status will not be granted to this special permit.
 - d. 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 transit and destination.
3. REGULATORY SYSTEM AFFECTED: 49 CFR Parts 106, 107 and 171-180.
4. REGULATIONS FROM WHICH EXEMPTED:
 - a. Cylinders: 49 CFR § 173.301(f) in that the cylinder is not equipped with a pressure relief device and §173.302a(a) in that a non-DOT specification cylinder is not authorized, except as specified herein.

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- b. Batteries: 49 CFR § 172.102 Special Provision 190(d) in that the low production batteries are not proven to meet the requirements of each test in the UN Manual of Tests and Criteria (Fifth Revised Edition).
5. BASIS: This special permit is based on the application of NASA, dated November 13, 2023, submitted in accordance with § 107.109.
6. HAZARDOUS MATERIALS (49 CFR § 172.101):

Hazardous Materials Description			
Proper Shipping Name	Hazard Class/ Division	Identification Number	Packing Group
Nitrogen, compressed	2.2	UN1066	N/A
Lithium metal batteries packed with equipment	9	UN3091	N/A

7. SAFETY CONTROLS:

- a. Cylinders: The pressurized cylinders may only be shipped, installed in the Simplified Aid For Extra-Vehicular Activity Rescue (SAFER) assembly described in United Space Alliance's application on file with the Office of Hazardous Materials Safety (OHMS).
- b. Batteries:
1. The battery assembly consists of 42 three volt lithium metal cells (Sanyo Part No. CR123A or Duracell Part No. Ultra123).
 2. The lithium content in a battery may not exceed a total 24 g of lithium metal with each cell containing not more than 0.57 g of lithium metal and weighing not more than 17 g.
 3. The weight of the battery assembly may not exceed 4.4 lbs. (1.99 kg).
 4. Cells and batteries must be protected against short circuits.

TESTING REQUIREMENTS:

- a. The cells in the battery assembly must have passed all required tests in accordance with Section 38.3, UN Manual of Tests and Criteria, 5th Revised Edition.
- b. The battery assemblies must have passed NASA Johnson Space Center (JSC) Testing.

PACKAGING REQUIREMENTS:

- a. Prescribed packagings in the SAFER assembly are non-DOT specification cylinders.
- b. Each cylinder is a filament-wound carbon fiber reinforced stainless steel lined pressure vessel. The liner must be made of type 304L stainless from a configuration of 2 seamless hemispherical domed heads containing integral bosses circumferentially welded to form a cylinder. The overwrap must be T-1000 carbon graphite fiber with a REZ100 epoxy resin. The cylinder must comply with all NASA standards and specifications relating to SAFER, on file with the OHMS. The nominal volumetric capacity of the cylinder is approximately 170 cubic inches with a rated service pressure of 8,000 psi at 70°F. The cylinder is not equipped with safety relief devices.
- c. Only 6 cylinders are authorized to be used under the terms of this special permit. The cylinders will be rotated two at a time: two in space, two on the ground and two in transportation.
- d. The battery assembly must be contained in a metal enclosure and stored in a polyethylene zip lock bag.
- e. The SAFER assembly and the lithium battery package completed in step iv. above must be enclosed in a Nomex covered Pyrell foam pouch and then wrapped within a pink polyethylene bag.
- f. The assembly completed in Step v. above must be packed in a 4D crate which is the cargo transportation containment.
- g. One non-DOT specification cylinder may be transported within each SAFER unit, and a maximum number of two cargo transportation containments may be transported together.

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. The cylinder is only authorized 15 years from the date of manufacture or 100 pressurizations, whichever occurs first.
- d. The cylinders must be used exclusively as a component of the international space station.
- e. Each cylinder must be shipped in strong outside packagings in accordance with § 173.301(a)(9).
- f. MARKING: The cargo transportation shipping container must be marked "DOT-SP 12396" on two opposite sides in letters at least 2 inches in height on the contrasting background.

9. MODES OF TRANSPORTATION AUTHORIZED: Motor vehicle, cargo-only aircraft, cargo vessel, passenger-carrying aircraft, rail freight.

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 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 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.

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