



U.S. Department
of Transportation

**Pipeline and Hazardous
Materials Safety
Administration**

March 10, 2023

1200 New Jersey Avenue, SE
Washington, DC 20590

DOT-SP 21426

EXPIRATION DATE: 2025-02-28

(FOR RENEWAL, SEE 49 CFR 107.109)

1. GRANTEE: Spaceflight, Inc.
Seattle, WA
2. PURPOSE AND LIMITATION:
 - a. This special permit authorizes the transportation in commerce of low production lithium ion batteries contained in equipment (spacecraft) via cargo-only aircraft. This special permit provides no relief from the Hazardous Materials Regulations (HMR) or the International Civil Aviation Organization's Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO TI) other than as specifically stated herein. The most recent revision supersedes all previous revisions.
 - b. The safety analyses performed in the development of this special permit only considered the hazards and risks associated with the transportation in commerce.
 - c. This special permit serves as an approval under Special Provision A88 of the ICAO TI and as a "Competent Authority Approval" as defined under 49 CFR § 107.1.
 - d. 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 § 173.185(a)(1) in that the battery pack assembly (BPA) contained in equipment is not of a type proven to meet the requirements of the UN Manual of Tests and Criteria.
5. BASIS: This special permit is based on the application of Spaceflight, Inc. dated July 27, 2022, submitted in accordance with § 107.105 and the public proceeding thereon.

Tracking Number: 2022084495

6. HAZARDOUS MATERIALS (49 CFR 172.101):

Hazardous Materials Description			
Proper Shipping Name	Hazard Class/ Division	Identification Number	Packing Group
Lithium ion batteries contained in equipment <i>including lithium ion polymer batteries</i>	9	UN3481	N/A

7. SAFETY CONTROL MEASURES:a. PACKAGING:

(1) The battery pack assembly (BPA) contained in equipment (spacecraft) is designed for space application and must have a strong impact-resistant aluminum outer casing, be affixed to the spacecraft bus, and be integrated in a CubeSat dispenser.

(2) The equipment containing the BPA must be wrapped in a plastic electrostatic dissipative bag and then placed in a cushioned shipping container, UN4H2 meeting the Packing Group I performance criteria.

(3) The gross weight of a package must not exceed 51 kg (112.4 pounds).

b. TESTING:

(1) The cells must be of a type that has passed the required tests in accordance with the UN Manual of Tests and Criteria, 5th Revised Edition.

(2) The BPA contained in equipment may not be of a type that has passed the required tests in accordance with the UN Manual of Tests and Criteria but must be of a type designed to operate in the extreme environment of outer space including a significant amount of sustained force, random vibration, shock, space vacuum, and thermal cycling as specified in the Spaceflight's July 27, 2022, application on file with the Office of Hazardous Materials Safety (OHMS).

c. MARKING: Each package covered under the terms of this special permit must be durably and legibly marked and displayed on a background of contrasting color with "DOT-SP 21426".

d. OPERATIONAL CONTROLS:

- (1) The BPA contained in equipment (spacecraft) is comprised of Panasonic cells (NCR18650) in a 4S4P configuration and has a total energy rating as specified in the Spaceflight's July 27, 2022, application on file with the OHMS.
- (2) The spacecraft must be integrated in the CubeSat dispenser constructed of materials suitable to operate in the extreme environment of space.
- (3) Cells and the BPA contained in equipment must be protected against short-circuiting.
- (4) The BPA contained in equipment must be equipped with an effective means of preventing dangerous reverse current flow for cells that are connected in parallel.

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 or its contents 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.

9. MODES OF TRANSPORTATION AUTHORIZED: Cargo-only aircraft.

10. MODAL REQUIREMENTS: A current copy of this special permit must be carried aboard each aircraft 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.

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.

PO: SH/TG