



U.S. Department
of Transportation

**Pipeline and Hazardous
Materials Safety
Administration**

October 20, 2021

1200 New Jersey Avenue, SE
Washington, DC 20590

DOT-SP 21273

EXPIRATION DATE: 2023-06-30

(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 prototype and low production lithium ion batteries contained in equipment in alternative packaging by ground transportation. 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 the development of this special permit only considered the hazards and risks associated with the 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 § 173.185(e)(3) in that the outer packaging is not a UN-Specification packaging, except as specified herein.
5. BASIS: This special permit is based on the application of Spaceflight, Inc. dated July 30, 2021 and additional information dated October 9, 2021, submitted in accordance with § 107.105 and the public proceeding thereon.

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. OPERATIONAL CONTROLS:

(1) This special permit is valid only for transportation of lithium ion batteries contained in the following equipment as identified in Spaceflight's July 30, 2021 application on file with the Office of Hazardous Materials Safety (OHMS):

(i) Nine (9) spacecraft types identified in the application on file with the OHMS.

(ii) The Spaceflight proprietary aerospace hardware in which two batteries each with a total nominal energy content of 318 Wh or 71 Wh comprised of Samsung INR21700-40T or INR21700-50E cells are installed.

(2) The number of batteries and the total energy capacity in each spacecraft is as described in Spaceflight's July 30, 2021 application on file with the OHMS.

(3) The batteries must be equipped with a means of preventing dangerous reverse current flow for cells and batteries connected in parallel.

(4) Not more than one spacecraft is permitted within a package.

(5) The spacecraft must be constructed to prevent against accidental operation during transport.

b. TESTING REQUIREMENTS:

(1) Each cell in the batteries including those installed in the Spaceflight proprietary aerospace hardware must be a type that has passed the required tests in accordance with the UN Manual of Tests and Criteria, 6th Revised Edition.

(2) Each battery contained in equipment may not have passed the tests in accordance with the UN Manual of Tests and Criteria, 6th Revised Edition except

for the battery with the total energy content of 18.72 Wh that consists of two 18650 form factor cells and that was tested to NASA document JSC 66548 as described in the Spaceflight's July 30, 2021 application.

c. PACKAGING: The spacecraft bus which houses the spacecraft must have been designed to handle the rigors of operating in outer space. The spacecraft bus is assembled as follow:

(1) Spacecraft placed in commercial off the shelf (COTS) CubeSat dispenser the dispensers must be designed and constructed of materials suitable to operate in the extreme environment of space and have extensive flight heritage.

(2) Spacecraft affixed to Spaceflight proprietary aerospace hardware the Spaceflight hardware must be wrapped in electrostatic discharge (ESD) material. The ESD-wrapped Spaceflight hardware must be placed in custom-made containers constructed of marine-grade wood or wood containers with fiberglass-wrapped wood top and side panels.

(3) Spacecraft affixed directly to a Dual Port Adapter (DPA) - The DPAs must be wrapped in ESD material. The ESD-wrapped DPAs must be placed in custom-made containers constructed of marine-grade wood or the wood containers with fiberglass-wrapped wood top and side panels.

(4) The batteries contained in equipment must be protected from short circuiting while in transportation.

d. MARKING: Each package prepared under the provisions of this special permit must be plainly marked with the permit number "DOT-SP 21273".

8. SPECIAL PROVISIONS:

a. A person who is not a holder of this special permit, but receives a packaging covered by this special permit, may reoffer it for transportation provided no modification or change is made to the packaging and it is offered 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: Motor vehicle.

10. MODAL REQUIREMENTS: A current copy of this special permit must be carried aboard each motor vehicle used to transport packages covered by this special permit.

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-30, 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: Steve H/Kenny Herzog