



U.S. Department  
of Transportation

**Pipeline and Hazardous  
Materials Safety  
Administration**

**November 08, 2021**

1200 New Jersey Avenue, SE  
Washington, DC 20590

DOT-SP 21094  
(SECOND REVISION)

**EXPIRATION DATE: 2022-12-31**

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. GRANTEE: Umbra Lab, Inc.  
Santa Barbara, CA
2. PURPOSE AND LIMITATION:
  - a. This special permit authorizes the transportation of prototype lithium batteries contained in equipment (spacecraft). 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. The safety analyses did not consider the hazards and risks associated with consumer use, use as a component of a transport vehicle or other device, or other uses not 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 § 173.185(a)(1) in that each lithium battery need not be of the type proven to meet the criteria in Part III, subsection 38.3 of the UN Manual of Tests and Criteria and § 173.185(b) in that the packaging specified herein may be used.

Tracking Number: 2021104578

5. BASIS: This special permit is based on the application of Umbra Lab, Inc. dated October 11, 2021 and 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
Lithium ion batteries contained in equipment <i>including lithium ion polymer batteries</i>	9	UN3481	N/A

7. SAFETY CONTROL MEASURES:

(1) The integrated battery modules contained in equipment (spacecraft) within each package are composed of the number lithium ion modules and cells as specified in the August 5, 2020 application and on file with the Office of Hazardous Materials Safety Approvals and Permits Division (OHMSAPD).

(2) Battery modules must be installed with internal protection to prevent short-circuiting.

(3) The nominal energy contents of each battery module and the cell are as specified in the August 5, 2020 application (Document Number 1604D0083, Revision 2) and on file with the OHMSAPD.

(4) Each battery module must be equipped with a means of preventing overcharge, overdischarge, and dangerous reverse current flow for cells and modules connected in parallel.

(5) No more than one spacecraft is permitted within a package.

b. TESTING:

(1) The battery modules contained in equipment must be composed of cells of a type that have passed all required tests as specified in the "UN Manual of Tests and Criteria, 7<sup>th</sup> Revised Edition."

(2) Each battery module contained in equipment must have passed selective testing in accordance with SMC-S-016 resembling the UN 38.3 test requirements as they relate to T.1 (Altitude), T.2 (Thermal), T.3 (Vibration), T.4 (Shock), and

T.6 (Impact/Crush) tests of the “UN Manual of Tests and Criteria” as described in the August 5, 2020 application and on file with the OHMSAPD.

c. PACKAGING:

(1) Inner packaging: The battery module contained in equipment must be hard-mounted within the chassis, which is built with a strong, impact resistant casing and serves as an inner packaging.

(2) Outer Packaging: The inner packaging must be placed in a rigid Pelican case (nominal 17.4 ft<sup>3</sup> or 0.492 m<sup>3</sup>; tare weight 55.5 pounds or 25.2 kg) walled with polyethylene packing foam on all sides and the bottom.

(3) The net weight of the battery modules within a package may not exceed 12 kg (27 pounds).

d. MARKING: Each package must be marked with the special permit number “DOT-SP 21091” in accordance with § 172.301(c).

8. SPECIAL PROVISIONS:

a. Under the terms of this special permit, the grantee may only offer hazardous materials (i.e., the grantee is not authorized as a carrier).

b. 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.

c. 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: TG