



U.S. Department
of Transportation

**Pipeline and Hazardous
Materials Safety
Administration**

January 20, 2022

1200 New Jersey Avenue, SE
Washington, DC 20590

DOT-SP 21249
(SECOND REVISION)

EXPIRATION DATE: 2025-10-31

(FOR RENEWAL, SEE 49 CFR 107.109)

1. GRANTEE: Romeo Systems, Inc.
Vernon, CA
2. PURPOSE AND LIMITATIONS:
 - a. This special permit authorizes the transportation in commerce of certain lithium ion battery modules and battery packs each with a net weight exceeding 35 kg aboard 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. No party status will be granted to this special permit.
 - d. This special permit serves as an approval under Special Provision A99 of the ICAO TI and § 173.185(b)(5) and as a "Competent Authority Approval" as defined under 49 CFR § 107.1.
3. REGULATORY SYSTEM AFFECTED: 49 CFR Parts 106, 107 and 171- 180 and the ICAO TI.
4. REGULATIONS FROM WHICH EXEMPTED: 49 CFR § 172.101 Hazardous Materials Table Column (9B) in that a lithium battery may not exceed 35 kg, except as specified herein.
5. BASIS: This special permit is based on the application of Romeo Systems, Inc. dated November 29, 2021, submitted in accordance with § 107.109.

6. HAZARDOUS MATERIALS (49 CFR 172.101):

Hazardous Material Description			
Proper Shipping Name	Hazard Class/ Division	Identification Number	Packing Group
Lithium ion batteries	9	UN3480	N/A

7. SAFETY CONTROL MEASURES:a. Operational Controls:

(1) All battery modules identified as 16S HERMES, 24S HERMES, or 32S HERMES must be comprised of 48G, 48X, or 50G Samsung cells in a configuration described in Romeo Systems, Inc.'s applications dated June 12, 2021 as amended on June 30, 2021, and July 16, 2021 and on file with the Office of Hazardous Materials Safety (OHMS).

(2) Each module has a nominal energy capacity of 11 kWh and is composed of one variant of cell with no mixing within the modules. Each different module type must comply with all the conditions of this special permit including Section 38.3.2.2 and those required by the UN Manual of Tests and Criteria prior to being offered for transportation.

(3) The battery packs identified as the Orion packs must be constructed from the 16S HERMES, 24S HERMES, or 32S HERMES modules in which the modules are electrically connected into battery packs of a nominal energy rating of 33 kWh each.

(4) Only production lithium ion battery modules and battery packs conforming to this paragraph 7.a. and described in Romeo Systems, Inc.'s applications dated June 12, 2021 as amended on June 30, 2021, and July 16, 2021 and on file with the OHMS may be offered for transportation under the terms of this special permit.

(5) Cells, battery modules, and battery packs must be protected against short-circuiting.

(6) All battery modules and the battery packs must be offered for transportation aboard aircraft at a state of charge not greater than 30 %.

(7) Battery modules or battery packs with cells connected in parallel must be equipped with an effective means to prevent dangerous reverse current flow.

(8) The Orion battery packs must be equipped with a battery management system that has been verified as preventing overcharge, short circuits, and over-discharge between the modules.

(9) The battery modules and packs must be secured to prevent inadvertent movement and the terminals may not support the weight of other superimposed elements.

b. Testing Requirements:

(1) Each battery module must be comprised of lithium ion cells that are of a type that have passed the required tests as specified in the “UN Manual of Tests and Criteria, 6th Revised Edition.” Any deviation from this requirement shall nullify this special permit.

(2) Each lithium ion battery module must be of a type that has passed the required tests as specified in the “UN Manual of Tests and Criteria, 6th Revised Edition”.

(3) The Orion battery packs must be of a type that has passed selective testing (short-circuiting, overcharge, and over-discharge) as described in Romeo Systems, Inc.’s application dated July 16, 2021.

c. Packaging Requirements:

(1) 16S HERMES, 24S HERMES, or 32S HERMES Modules:

(i) Inner Packaging: Each module must be individually packaged in a fully enclosed non-metallic inner packaging and surrounded by cushioning material (foam pads) that is non-combustible and non-conductive;

(ii) Outer packaging: The inner packaging must be further packaged in a UN 4G fiberboard outer packaging that meets Packing Group II performance criteria;

(iii) Only one module may be packaged per outer packaging;

(iv) The net weight of the module within the package may not exceed 50 kg (110 pounds); and

(v) Packaging must comply with the requirements in Packing Instruction 974 of the Supplement to the ICAO TI. Additionally, waste lithium modules and lithium modules being shipped for recycling or disposal are forbidden from air transport, and lithium ion modules must not be packed in the same outer packaging with substances and articles of

Class 1 (explosives) other than Division 1.4S, Division 2.1 (flammable gases), Class 3 (flammable liquids), Division 4.1 (flammable solids), or Division 5.1 (oxidizers).

(2) Orion Battery Packs:

- (i) Each battery pack must have a mass of 12 kg or greater and must have a strong, impact-resistant outer casing;
- (ii) The battery pack must be cushioned with custom cut foam at the bottom and anti-static foam on top and then shrink-wrapped;
- (iii) The shrink-wrapped battery pack must be packed in a strong outer packaging, which is a wooden crate with wooden base;
- (iv) Only one battery pack may be packed within a packaging.;
- (v) The net weight of the battery assembled with a battery management system and casing within the package may not exceed 200 kg (441 pounds);
- (vi) Packaging must comply with the requirements in Packing Instruction 974 of the Supplement to the ICAO TI. Additionally, waste lithium battery packs and lithium battery packs being shipped for recycling or disposal are forbidden from air transport, and lithium ion battery packs must not be packed in the same outer packaging with substances and articles of Class 1 (explosives) other than Division 1.4S, Division 2.1 (flammable gases), Class 3 (flammable liquids), Division 4.1 (flammable solids), or Division 5.1 (oxidizers);
- (vii) One package may be shipped loose and/or strapped and shrink-wrapped to a pallet; and
- (viii) An overpack may be used on two (2) packages or more and must be shrink-wrapped on a pallet.

- d. MARKING: Each package, and overpack if used, prepared under the provisions of this Special Permit must be plainly marked with the special permit number DOT-SP 21249 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, the HMR, and the ICAO TI.

c. A current copy of this special permit must be maintained at each facility where the package is offered or reoffered for transportation.

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 origin, transit, and destination and the State of operator.

e. The special permit holder must maintain a record of all activity conducted under the authority granted in this special permit. The record must contain a complete listing and number of shipments made to include and upon request make this information available to a DOT representative or an enforcement official. The record must contain a listing and number of shipments made to include:

- (1) Dates of shipment; and
- (2) Description of each type of shipment.

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 Materials 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: Steve H/KH