

October 08, 2020



U.S. Department  
of Transportation

East Building, PHH-30  
1200 New Jersey Avenue S.E.  
Washington, D.C. 20590

**Pipeline and Hazardous  
Materials Safety Administration**

DOT-SP 21093

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. GRANTEE: (See individual authorization letter)
2. PURPOSE AND LIMITATION:
  - a. This special permit authorizes the transportation in commerce of the low production lithium metal battery identified as Model No.9ER20P-20B, manufactured by Orion HIT, which are specifically designed for space flight, as Class 9 without passing UN T.6 - Impact Test. This special permit provides no relief from the Hazardous Materials Regulations (HMR), the International Civil Aviation Organization's Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO TI), or the International Maritime Dangerous Goods (IMDG) Code 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. Unless otherwise stated herein, this special permit consists of the special permit authorization letter issued to the grantee together with this document.
  - d. This special permit serves as an "exemption" as defined in 1;3.1.1 of the ICAO TI and Chapter 7.9, Section 7.9.1 of the IMDG Code 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, the ICAO TI, and the IMDG Code.
4. REGULATIONS FROM WHICH EXEMPTED: 49 CFR § 173.185(a)(1) and 2;9.3.1 a) of the ICAO TI in that each lithium battery need not be of the type proven to meet the criteria in Part III,

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subsection 38.3 of the UN Manual of Tests and Criteria, except as specified herein; and § 173.185(b)(3)(i), the second paragraph in 1A.2 of Packing Instruction 968 of the ICAO TI, and paragraph (1)(b) of Packing Instruction P910 of the IMDG Code in that batteries need not be placed in inner packagings before being placed in an outer packaging.

5. BASIS: This special permit is based on the application of Orbital Sciences LLC dated August 7, 2020 submitted in accordance with § 107.105 and the public proceeding thereon.
6. HAZARDOUS MATERIALS (49 CFR 172.101):

| <b>Hazardous Materials Description</b> |                              |                              |                      |
|--|------------------------------|------------------------------|----------------------|
| <b>Proper Shipping Name</b>            | <b>Hazard Class/Division</b> | <b>Identification Number</b> | <b>Packing Group</b> |
| Lithium metal batteries*               | 9                            | UN3090                       | N/A                  |

\* Only low production lithium batteries may be offered for transportation under the terms of this approval ("Low production" is defined as not more than 100 batteries annually of a particular type.).

7. SAFETY CONTROL MEASURES:

a. BATTERY REQUIREMENTS: Orbital Sciences LLC's Model No. 9ER20P-20B lithium thionyl chloride battery is manufactured by Orion HIT, has a capacity of 200 Ahr, and must consist of the base of the case that houses the gas-absorption system and 10 blocks, each of which includes two independent groups of nine type ER20P series connected cells and two 2D213A isolation diodes that protect each circuit from a possible charge.

(1) Only those batteries described in Orbital Sciences Corporation's approval application (for CA2011080007) submitted August 15, 2011 and identified as Model No. 9ER20P-20B lithium metal batteries may be classed as Class 9 lithium batteries. The batteries must be designed for space flight.

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(2) The battery must be equipped with protective diodes and other safety features that would prevent a reverse current or other damage.

(3) All cells and batteries must maintain the open circuit voltage no less than two volts or two-thirds of the voltage of the un-discharged cell.

(4) Cells must be protected from over-discharge by connecting 2D212A diodes in parallel to each cell.

(5) The base of the case must be equipped with a pressure relieve valve to vent the internal pressure in case of short-circuit or significant heating.

b. TESTING REQUIREMENTS: All required UN tests (UN Manual of Tests and Criteria, Fifth Revised Edition, Part III, § 38.3) for Orbital Sciences LLC's lithium metal cells and battery Model No. 9ER20P-20B must be successfully completed and passed with the exception that UN Test T.6: (Impact Test) is waived.

c. PACKAGING REQUIREMENTS:

(1) The battery must be transported in an outer packaging that is a metal, plastics, or plywood drum or a metal, plastics, or wooden box that meets the criteria for Packing Group I packagings.

(2) All packages must be properly marked, labeled, and declared as required.

(3) Lithium metal batteries must be packaged to prevent external short-circuits, movement, and unintentional activation of the battery during transport.

(4) The net weight of a battery in a package may not exceed 27 kg.

(5) The gross weight of a package may not exceed 119 kg.

d. MARKING REQUIREMENTS: Each package, and overpack if used, prepared under the provisions of this special permit must be marked "DOT-SP 21093".

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e. LABELING REQUIREMENTS: Each package, and overpack if used, must be labeled with the CARGO AIRCRAFT ONLY label in accordance with ICAO TI 5;3.2 and 49 CFR 172.406.

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, the HMR, the ICAO TI, and the IMDG Code.

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

c. 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 the States of origin, transit, over flight and destination of the consignment, as well as the State of the air operator.

d. Advanced Notice to FAA Office of Hazardous Materials Safety. The grantee must notify the FAA Office of Hazardous Materials Safety ([9-AWA-AXH-SPFlightNotifications@faa.gov](mailto:9-AWA-AXH-SPFlightNotifications@faa.gov)) at least 72-hours in advance of the intended shipment, to include flight routing details, a copy of the Air Waybill, and HAZMAT shipping papers when using this special permit for air transportation.

e. The grantee must maintain the following record and upon request make this record 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: Motor vehicle, cargo vessel, and cargo-only aircraft.

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

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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

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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.:

A handwritten signature in dark ink, appearing to read "William J. Schoonover".

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: NICKS