

September 30, 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 21055
(FIRST REVISION)

EXPIRATION DATE: 2022-07-31

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. GRANTEE: AVL Powertrain Engineering, Inc.
Plymouth, MI
2. PURPOSE AND LIMITATION:
 - a. This special permit authorizes the transportation in commerce of a single prototype lithium ion battery. Only one shipment is authorized under the terms of this special permit. 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 A88 and State Variation US 3 of the ICAO TI 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 exceed 35 kg, § 173.185(a)(1) in that each lithium battery

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need not be of the type proven to meet the criteria in UN Manual of Tests and Criteria, and § 173.185(b)(3) in that a lithium battery need not be packaged in an inner packaging before being packed in strong outer packagings or protective enclosures, as provided herein.

5. BASIS: This special permit is based on the application of AVL Powertrain Engineering, Inc. dated May 11, 2020 submitted in accordance with § 107.105 and the public proceeding thereon and additional information dated September 9, 2020.
6. HAZARDOUS MATERIALS (49 CFR 172.101):

Hazardous Materials 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) Only one prototype lithium ion battery assembly may be offered for transportation from California to Austria under the terms of this special permit. Only one shipment is authorized under the terms of this special permit.

(2) Cells identified as Model US18650VTC5D each with a nominal energy rating of 9.72 Wh must be mounted within a battery module.

(3) The battery assembly may contain up to nine (9) battery modules in a 216S32P configuration and has a nominal energy content of 62 kWh.

(4) Cells, battery modules, and battery assembly must be protected from short-circuiting.

(5) The battery assembly must be equipped with an effective means of preventing dangerous reverse current flow for cells or modules connected in parallel.

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(6) The state of charge (SOC) for the battery assembly may not exceed thirty (30) percent when offered for transportation aboard aircraft.

b. TESTING:

(1) Each cell must be of a type that has passed the tests performed in accordance with the "UN Manual of Tests and Criteria, 6th Revised Edition".

(2) Each battery module must be equipped with a battery management system verified to prevent overcharge, short-circuiting, and over discharge.

(3) The prototype battery assembly must be equipped with a battery management system, which sends signals to each module to prevent overcharge, short-circuiting, and over discharge.

c. PACKAGING:

(1) The lithium ion battery assembly must have a strong, impact-resistant outer casing.

(2) The battery assembly must be packaged within a custom-built wooden crate strong outer packaging.

(3) The net mass of the battery assembly may exceed 35 kg but may not exceed 490 kg.

d. MARKING REQUIREMENTS: 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 21055".

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.

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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.

e. The grantee must maintain the following record and upon request and make this record available to DOT representatives or enforcement officials. The record to be maintained is as follows:

(1) Date of the shipment; and

(2) Description of the shipment.

9. MODES OF TRANSPORTATION AUTHORIZED: Motor vehicle and cargo-only aircraft.
10. MODAL REQUIREMENTS: A current copy of this special permit must be carried aboard each aircraft and motor vehicle 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.

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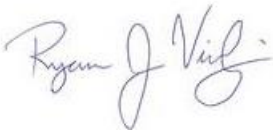
Each "Hazmat employee", as defined in § 171.8, who performs a function subject to this special permit must receive training on the requirements and conditions of this special permit in addition to the training required by §§ 172.700 through 172.704.

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

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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