

January 22, 2021



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 15848
(FOURTH REVISION)

(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 specialized cells, systems, and modules that exceed the net quantity weight restriction of hazardous materials as Dangerous Goods in Apparatus when transported by motor vehicle, rail freight, and cargo vessel. This special permit provides no relief from the Hazardous Materials Regulations (HMR) or the International Maritime Dangerous Goods Code (IMDG) 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 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, and the IMDG Code.

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4. REGULATIONS FROM WHICH EXEMPTED: 49 CFR § 173.222(c)(1) in that the maximum net quantity of solid hazardous material is limited to 1 kg (2.2 pounds) and IMDG Code Special Provision 301 in that the quantity of dangerous goods may not exceed the specified limited quantity, except as provided herein.
5. BASIS: This special permit is based on the modification and renewal application of Ambri Inc. dated February 4, 2020, submitted in accordance with § 107.105 and the public preceding thereon and additional information dated December 8, 2020.
6. HAZARDOUS MATERIALS (49 CFR § 172.101):

Hazardous Materials Description			
Proper Shipping Name	Hazard Class/ Division	Identification Number	Packing Group
Dangerous Goods in Machinery <i>or</i> Dangerous Goods in Apparatus	9	UN3363	N/A

7. SAFETY CONTROL MEASURES:
- a. PACKAGING: Packaging consists of one of the following:
- (1) CORE™ Cells must have an outer casing which is made of robust 1/8" thick or thicker stainless steel and which is adequately sealed to prevent contact with moisture or water.
 - (2) CORE™ Cells and CORE™ Systems must have outer construction which provides adequate protection to the cells within.
 - (3) CORE™ Systems and Power Modules (APM™) must be packaged in strong outer packagings or may be packaged in protective enclosures or on pallets.
- b. OPERATIONAL CONTROLS:
- (1) Hazardous materials in "liquid" metal CORE™ Cells, CORE™ Systems, and Power Modules (APM™) must remain "solids" and at ambient temperature during

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transport. The solids will be heated to molten state to form a "liquid" metal battery consisting of anode, salt electrolyte, and cathode made molten ("liquid") at the user location.

(2) The liquid metal cells, modules and systems transported at solid state must have zero voltage.

(3) This Special Permit authorizes the following CORE™ Cell, CORE™ System (375 CORE™ cells) and Power Module (APM™) (4 CORE™ Systems) designs:

(i) A cell shall not exceed 12"L x 12"W x 12"H;

(ii) Each cell shall not weigh more than 35 kg with a capacity not exceeding than 1600 Ah when activated;

(iii) Each cell shall not contain more than 8 kg of hazardous material when activated;

(iv) A CORE™ System and a Power Module (APM™) may contain up to 3,000 kg and 12,000 kg of hazardous material, respectively, in solid form; and

(V) A CORE™ System and a Power Module (APM™) may contain up to three hundred and seventy-five (375) cells and four (4) CORE Systems, respectively.

c. TESTING:

(1) The CORE™ Cell, CORE™ System and Power Module (APM™) of a specific design must be subjected to external short circuit test T.5 in accordance with the UN Manual of Tests and Criteria, Fifth revised edition and have passed the test.

(2) The CORE™ Cell, CORE™ System and Power Module (APM™) of a specific design must have passed the UL 2054 Bunsen burner test and UL 2054 crush test.

d. MARKING: Each package covered under the terms of this special permit must be durably and legibly marked and displayed on a background of contrasting color with "DOT-SP 15848".

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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, 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, and destination of the consignment.

9. MODES OF TRANSPORTATION AUTHORIZED: Motor vehicle, rail freight, and cargo vessel.

10. MODAL REQUIREMENTS: A current copy of this special permit must be carried aboard each motor vehicle and cargo vessel 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.

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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 http://hazmat.dot.gov/sp_app/special_permits/spec_perm_index.htm. Photo reproductions and legible reductions of this special permit are permitted. Any alteration of this special permit is prohibited.

PO: Hwang/SG/kah