



U.S. Department
of Transportation

**Pipeline and Hazardous
Materials Safety
Administration**

September 15, 2021

1200 New Jersey Avenue, SE
Washington, DC 20590

DOT-SP 21267

EXPIRATION DATE: 2022-02-28

(FOR RENEWAL, SEE 49 CFR 107.109)

1. GRANTEE: Synchronous LLC
Seattle, WA
2. PURPOSE AND LIMITATION:
 - a. This emergency special permit authorizes the transportation in commerce of prototype and low production lithium ion battery assemblies that have not completed all U.N. tests and exceed 35 kg net weight 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 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 § 173.185(a)(1) in that lithium battery assemblies have not passed the criteria in Part III, subsection 38.3 of the UN Manual of Tests and Criteria and § 172.101 Hazardous Materials Table Column (9B) in that the net weight of each battery assembly exceeds 35 kg net weight when transported aboard cargo-only aircraft.

5. BASIS: This emergency special permit is based on the application of Synchronous LLC dated July 26, 2021 submitted in accordance with § 107.117 and the determination it is necessary to prevent significant economic loss.
6. HAZARDOUS MATERIALS (49 CFR 172.101):

Hazardous Materials Description			
Proper Shipping Name	Hazard Class/ Division	Identification Number	Packing Group
Lithium ion batteries <i>including lithium ion polymer batteries</i>	9	UN3480	N/A

7. SAFETY CONTROL MEASURES:

a. OPERATIONAL CONTROLS:

- (1) Only prototype and low production lithium ion battery assemblies as described in Synchronous LLC's application dated July 26, 2021 and on file with the Office of Hazardous Materials Safety (OHMS) may be offered for transportation under the terms of this special permit. ("Low production" is defined as a production run of no more than 100 cells or batteries annually of a particular type.)
- (2) The battery assembly is made of seven (7) subpacks identified as "Anglo Battery" and has a nominal rated energy capacity indicated in the application, which is on file with the OHMS.
- (3) Each subpack is made of the EM408 modules each with a nominal rated energy capacity of 840 Wh with the number of modules provided in the application which is on file with the OHMS.
- (4) All battery assemblies must be offered for transportation aboard cargo-only aircraft at a state of charge between 15 percent and 20 percent.
- (5) The battery assemblies must be equipped with an effective means of preventing dangerous reverse current flow when cells, modules, or subpacks are connected in parallel.
- (6) Cells, modules, subpacks, and battery assemblies must be protected against short circuiting.

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

(8) The battery assembly must be equipped with a Master Battery Controller, which collects telemetry from each BMS to perform the functions.

b. Testing Requirements: All lithium ion cells and battery modules (Model Number EM408) must be of a type that has passed all required tests as specified in the “UN Manual of Tests and Criteria, 5th Revised Edition”.

c. Packaging Requirements:

(1) The lithium battery modules or subpacks must have a strong, impact-resistant outer casing.

(2) Additionally, the subpacks are each surrounded by an aluminum casing, which provides adequate protection from stray objects.

(3) Each battery assembly must be packed in a strong outer packaging or protective enclosure.

(4) The net weight of a battery assembly in a single package must exceed 12 kg but not exceed 8,400 kg (18,520 pounds).

(5) The gross weight of a single package must not exceed 27,440 kg (60,495 pounds).

(6) Each package must meet additional requirements in Packing Instruction 910 of the Supplement to the ICAO TI.

d. MARKING: Each package must be marked with the special permit number “DOT-SP 21267” in accordance with §172.301(c).

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 and the HMR.

b. 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: 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.:

A handwritten signature in blue ink, appearing to read "W. Schoonover", is written over a light blue circular stamp.

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: Steve H/TG