February 03, 2025



Pipeline and Hazardous Materials Safety Administration 1200 New Jersey Avenue, SE Washington, DC 20590

DOT-SP 21694

EXPIRATION DATE: 2026-12-31

(FOR RENEWAL, SEE 49 CFR 107.109)

1. <u>GRANTEE</u>: Invinity Energy Systems US Corp Oakland, CA

2. <u>PURPOSE AND LIMITATION</u>:

a. This special permit authorizes the transportation in commerce of wet batteries filled with acid in alternative packaging. This special permit provides no relief from the Hazardous Materials Regulations (HMR) 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. No party status will be granted to this special permit.

d. This special permit serves as an "exemption" as defined in 7.9.1 of the IMDG Code and a "Competent Authority Approval" as defined under 49 CFR § 107.1.

- 3. <u>REGULATORY SYSTEM AFFECTED</u>: 49 CFR Parts 106, 107 and 171-180.
- 4. <u>REGULATIONS FROM WHICH EXEMPTED</u>: 49 CFR § 173.159 and Packing Instruction P801 of the IMDG Code in that alternate packaging is used.
- 5. <u>BASIS</u>: This special permit is based on the application of Invinity Energy Systems US Corp dated December 20, 2023, and supplemental information dated February 29, 2024, submitted in accordance with § 107.105 and the public proceeding thereon.

Hazardous Materials Description			
Proper Shipping Name	Hazard Class/ Division	Identi- fication Number	Packing Group
Batteries, wet, filled with acid, <i>electric storage</i>	8	UN2794	N/A

6. HAZARDOUS MATERIALS (49 CFR 172.101):

7. <u>SAFETY CONTROL MEASURES</u>:

a. <u>PACKAGING</u>:

(1) The prescribed packaging is a VS3 vanadium redox flow battery (VRFB) module comprised of:

(i) Two 875-liter nominal electrolyte tanks manufactured from medium density polyethylene (PE) in accordance with BCI Engineering drawing DRW00954, Revision 2,

(a) One containing vanadyl sulfate in acid solution for the positive electrode, and

(b) One containing divanadium sulfate in acid solution for the negative electrode.

 (ii) A secondary 2,120 liter containment tub manufactured from medium density PE in accordance with BCI Engineering drawing DRW00920, Revision 2, that is empty and nested in the lower enclosure, and

(iii) A metal enclosure containing and surrounding the two individual electrolyte tanks and the containment tub, in accordance with BCI Engineering drawings DRW00827, Revision 3.

(a) The metal enclosure is constructed from 1.5 mm thick carbon steel and is attached to a reinforced metal skid, which is equipped with forklift pockets for handling and securement.

(b) The carbon steel must be coated with a material capable of withstanding electrolyte exposure.

(iv) Other component parts such as electronics, pumps and hoses that are integral to the VS3 VRFB modules.

(3) The VS3 VRFB battery module is approximately 1.86m x 1.05m x 2.14 m in size and weighs approximately 3,750 kg (8,267 pounds).

b. <u>TESTING</u>: The two individual tanks, the containment tub, and all component parts that come in contact with electrolyte must have been tested for chemical resistance, compatibility with the electrolyte, and the suitability to withstand mechanical and environmental stresses incident to normal transportation.

c. <u>OPERATIONAL CONTROLS</u>:

(1) The electrolyte must not be electrically charged prior to or during transportation.

(2) A maximum of five (5) VS3 VRFB battery modules may be transported in a rigid metal enclosure on a designated transport vehicle with no other hazardous materials present on the vehicle. Each module has an aggregate energy content of 37 kWh and a nominal voltage of 850 Vdc.

(3) During transportation the VS3 VRFB battery module must be securely fastened to the vehicle.

(4) During transportation the VS3 VRFB battery modules must be protected from short-circuiting.

(5) The vehicle driver must possess a commercial drivers license with a hazardous materials endorsement.

(6) The holder shall have an emergency response program in place including spill response transported on the vehicle during shipment. An emergency response telephone number must be included with shipping papers and available at all times during transportation.

d. <u>MARKING</u>:

(1) Each VS3 VRFB battery module prepared under the provisions of this special permit must be plainly marked with the permit number "DOT-SP 21694".

(2) VS3 VRFB battery modules must be labeled and placarded as required by the HMR.

(3) An emergency response telephone number must be marked on the VS3 VRFB battery module in case of damage to the packaging or contents.

8. <u>SPECIAL PROVISIONS</u>:

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 or its contents 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. <u>MODES OF TRANSPORTATION AUTHORIZED</u>: Motor vehicle and cargo vessel.
- 10. <u>MODAL REQUIREMENTS</u>: A current copy of this special permit must be carried aboard each cargo vessel, or motor vehicle used to transport packages covered by this special permit.
- 11. <u>COMPLIANCE</u>: 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 <u>et seq</u>:
 - 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 <u>et seq</u>., 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),

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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. <u>REPORTING REQUIREMENTS</u>: 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.:

Water by

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-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 <u>https://www.phmsa.dot.gov/approvals-and-permits/hazmat/special-permits-search</u>. Photo reproductions and legible reductions of this special permit are permitted. Any alteration of this special permit is prohibited.

PO: SH/TG