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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 20661
(FIRST 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 a large lithium battery assembly mounted in an ISO container that also contains a DOT specification cylinder. 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. 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 7.9.1 of the IMDG Code and as a "Competent Authority Approval" as defined under 49 CFR § 107.1.
 - e. No party status will be granted to this special permit.
3. REGULATORY SYSTEM AFFECTED: 49 CFR Parts 106, 107 and 171-180 and the IMDG Code.
4. REGULATIONS FROM WHICH EXEMPTED: 49 CFR Part 172 Subpart C, D and E and Chapters 5.2 and 5.4 of the IMDG Code in that shipping papers, marks and labels are not required for cylinders used in the fire suppressant system when

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incorporated into the ISO container; § 173.185(b) and Packing Instruction 903 of the IMDG Code in that alternative packaging is authorized; § 173.301(g) in that a cylinder used in the fire suppressant system may be connected to a piping system during transport; and 173.301(h) in that a cylinder used in the fire suppressant system needs not be fitted with valve protection.

5. BASIS: This special permit is based on the modification application of Saft America Inc. dated October 24, 2018 submitted in accordance with § 107.105 and the public proceeding thereon.
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
Chemical under pressure, n.o.s (nitrogen)	2.2	UN3500	N/A
Refrigerating machines, <i>containing non-flammable, non-toxic gases, or ammonia solutions (UN2672)</i>	2.2	UN2857	N/A

7. SAFETY CONTROL MEASURES:

a. PACKAGING: Packaging prescribed is a large lithium ion battery assembly mounted within an ISO shipping container not exceeding 40 feet in length which also contains a securely mounted fire suppression system incorporating a cylinder charged with a compressed gas and an air conditioning/heating unit (i.e., a "refrigerating machine") and meeting the following requirements:

(1) Lithium ion battery assembly:

(i) Batteries (modules) of which the battery assembly is comprised must be SAFT batteries with

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a maximum rated energy capacity of not more than 3000 Wh or Soundon New Energy Technology Co. Ltd. batteries with a nominal rated energy capacity of not more than 20,440 Wh.

(ii) The maximum rated energy capacity of the battery assembly may not exceed 3.0 MWh.

(iii) Each battery assembly must be comprised of strings of batteries connected in parallel, and must be fitted with a Master Battery Management Module (MBMM) capable monitoring and controlling the state of charge in all parallel strings, preventing overcharge, and preventing any dangerous interaction between the strings.

(iv) Each battery string must be fitted with a Battery Management Module (BMM) that is capable of controlling battery charge and discharge, monitoring the state of each battery, preventing overcharge, and isolating the string from the battery assembly if necessary.

(v) There must be no electrical connections from the interior to the exterior of the ISO container while the container is in transport.

(vi) The battery assembly, with a Watt-hour rating greatly exceeding 6200 Wh, must be equipped with systems (i.e., the form of the BMM and MBMM systems) capable of monitoring the battery assembly and preventing short circuits, or over discharge between the batteries in the assembly and any overheat or overcharge of the battery assembly.

(2) Fire suppression system. The fire suppression system consists of a DOT Specification 4BW cylinder containing a non-hazardous liquid fire suppressant and charged with compressed nitrogen. The cylinder must meet the following requirements:

(i) Maximum capacity: 74 L (163 pounds water capacity);

(ii) Maximum charge pressure: 360 psig at 70 °F.

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(3) Air conditioning/heating system. The air conditioning/heating system (refrigerating machine) must contain not more than 12 kg (25 pounds) of non-flammable, non-toxic refrigerant gas.

(4) The materials specified in paragraphs 7.a.(1) through 7.a.(3) must be further packaged as follows:

(i) The battery assembly and fire suppression system must be securely mounted within, and the air conditioning system attached to, an ISO-standard freight container not greater than a nominal 40 feet in length, and which conforms to the requirements of the International Convention for Safe Containers (CSC), as amended.

(ii) Within the ISO container, batteries must be arranged in stacks within metal cabinets which are securely and permanently fastened to the structure of the container in conformance with the following:

(A) Batteries must be secured within cabinets or onto racks in such a manner as to prevent short circuit, accidental operation, and significant movement relative to the cabinet or rack under the shocks, loadings and vibrations normally incident to transport.

(B) Each cabinet or rack must be permanently secured to the structure of the ISO container in such a manner as to prevent significant movement relative to the container under the shocks, loadings and vibrations normally incident to transport.

(iii) Within the ISO container, the fire suppression system, consisting of the cylinder and associated piping, must be securely mounted to the structure of the ISO container in such a manner as to prevent significant movement relative to the container under the shocks, loadings and vibrations normally incident to transport, and so as to ensure the cylinder valve and associated piping is suitably protected from damage, or isolated from structures or equipment that could damage the valve or piping.

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(iv) The air conditioning/heating system must be securely mounted to one end of the ISO container in such a manner as to prevent significant movement relative to the container under the shocks, loadings and vibrations normally incident to transport.

b. TESTING:

(1) Cell and battery:

(i) Batteries (modules) of which the battery assembly is comprised, and their component cells, must be of a type that has been successfully subjected to all applicable tests as required by Part III, Section 38.3, of the UN Manual of Tests and Criteria, Fifth or Sixth Revised Edition, or Sixth Revised Edition, Amendment 1.

(ii) As prescribed in 38.3.3 (last paragraph) of Part III, Section 38.3, of the UN Manual of Tests and Criteria, Fifth Revised Edition, and in paragraph 38.3.3 (g) of the Sixth Revised Edition and Sixth Revised Edition, Amendment 1, the battery assembly must be equipped with a system capable of monitoring the battery assembly and preventing short circuits, or over discharge between the batteries in the assembly and any overheat or overcharge of the battery assembly.

(2) Cylinders used in the fire suppression system must be periodically inspected, tested and marked according to the applicable requirements of 49 CFR 173.335(d) and Part 180.

c. OPERATIONAL CONTROLS:

(1) The cylinder containing the fire suppressant liquid charged with compressed gas are not be subject to the shipping paper requirements of Subpart C of Part 172 and Chapter 5.4 and the marking and labeling requirements of Subpart D of Part 172 and Chapter 5.2. The fire suppression system may remain active during transport.

(2) The air conditioning/heating system may not be operating during transport, and is excepted from all requirements of 49 CFR Parts 171 to 180 as provided for

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in 49 CFR § 173.307(a)(4)(i).

d. MARKING: The shipping container must carry on each end and side a Class 9 placard, the UN3480 identification number, or, on or after January 1, 2019, the UN3536 identification number, and must be marked with the special permit number in accordance with 49 CFR §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 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. MODES OF TRANSPORTATION AUTHORIZED: Motor vehicle and cargo vessel.

10. MODAL REQUIREMENTS: 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. 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

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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.

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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: Steve H/RS/Andrew Eckenrode/TD