

January 19, 2010



U.S. Department
of Transportation

East Building, PHH - 30
1200 New Jersey Avenue, Southeast
Washington, D.C. 20590

**Pipeline and Hazardous
Materials Safety Administration**

DOT-SP 13598
(FIFTH REVISION)

EXPIRATION DATE: November 30, 2013

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. GRANTEE: Jadoo Power Systems, Incorporated
Folsom, CA
2. PURPOSE AND LIMITATIONS:
 - a. This special permit authorizes the manufacture, mark, sale and use of hydrogen storage systems for use in fuel cells to power portable devices. The hydrogen storage systems utilize non-DOT specification cylinders containing hydrogen absorbed in metal hydride. This special permit provides no relief from the Hazardous Materials Regulations (HMR) other than as specifically stated herein. The most recent revision supersedes all previous revisions.
 - b. The safety analyses performed in development of this special permit only considered the hazards and risks associated with transportation in commerce. The safety analyses did not consider the hazards and risks associated with consumer use, use as a component of a transport vehicle or other device, or other uses not associated with transportation in commerce.
3. REGULATORY SYSTEM AFFECTED: 49 CFR Parts 106, 107 and 171-180.
4. REGULATIONS FROM WHICH EXEMPTED: 49 CFR § 173.301(f) in that the non-DOT specification cylinder is fitted with a pressure relief device that does not meet the requirements of CGA S-1.1, Ninth Revision; and § 173.301(d) in that the material within the cylinder has the potential to endanger the cylinder's serviceability.

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5. BASIS: This special permit is based on the applications of Jadoo Power Systems Incorporated dated November 1, 2009 submitted in accordance with § 107.109.
6. HAZARDOUS MATERIALS (49 CFR § 172.101):

Hazardous Materials Description			
Proper Shipping Name	Hazard Class/ Division	Identification Number	Packing Group
Hydrogen absorbed in metal hydride	2.1	NA9279	N/A
Hydrogen in a metal hydride storage system	2.1	UN3468	N/A

7. SAFETY CONTROL MEASURES:

a. PACKAGING - Prescribed packaging is a hydrogen storage system (canister) incorporating a non-DOT specification cylinder containing hydrogen absorbed in metal hydride. The cylinder must have a design service pressure of at least 1,800 psig and a maximum water capacity of 3.25 pounds. The hydrogen storage system must be manufactured in accordance with Jadoo Power Systems Incorporated's (JPSI) Hydride Canister Product Specification Document 114452 on file with the Office of Hazardous Materials Special Permits and Approvals (OHMSPA). The hydrogen storage system must be in conformance with the following:

(1) Pressure relief devices. The cylinder must be equipped with a CGA CG-9 217°F fusible plug pressure relief device. The entire hydrogen storage system must have successfully passed a fire test as described in CGA Pamphlet C-14.

(2) The hydrogen storage system must be equipped with an internal geometric configuration that prevents the metal hydride within from exerting detrimental forces on the cylinder. The internal geometric configuration must be in accordance with Texaco Ovonics Hydrogen Systems Internal Product Standard 550003-2003 on file with the OHMSPA under docket DOT-SP 13280.

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(3) The cylinder must be in conformance with all requirements of a DOT Specification 3AL-1800 cylinder (49 CFR §§ 178.35 and 178.46) except that in § 178.35(f)(1)(i) "DOT-SP 13598-400" must be permanently marked in lieu of "DOT 3AL-1800".

b. TESTING - No periodic retest is required.

c. MARKING - Each cylinder must be marked "DOT-SP 13598". Each outside packaging must be marked "INSIDE PACKAGING COMPLIES WITH DOT-SP 13598". Outside packagings shipped by cargo aircraft must be labeled "CARGO AIRCRAFT ONLY".

d. OPERATIONAL CONTROLS

(1) Refilling must be performed by JPSI or its customers. Cylinders must only be refilled using the JPSI automated refilling station and in accordance with the Product's User's Manual on file with the OHMSPA.

(2) The maximum charging pressure of the hydrogen storage system is 400 psig.

(3) The hydrogen storage system must be shipped in strong outside packaging in accordance with § 173.301(a)(9).

(4) Hydrogen storage systems shipped by cargo aircraft or cargo vessel must be shipped inside of the following UN packagings: UN 1A2, 1N2, 1H2, 4A, 4C1, 4C2, 4D, 4F, 4G or 4H2, meeting the Packing Group III performance level.

(5) Each package of hydrogen storage systems shipped by cargo aircraft or cargo vessel must have a maximum net quantity of 200 pounds (90.7 kg) of hazardous material.

(6) Each cylinder must be removed from service five years from the date of manufacture.

8. SPECIAL PROVISIONS:

a. In accordance with the provisions of Paragraph (b) of § 173.22a, persons may use the packaging authorized by this special permit for the transportation of the hazardous materials specified in paragraph 6, only in conformance with the terms of this special permit.

b. A current copy of this special permit must be maintained by the grantee of this special permit and distributors of the hydrogen storage system.

c. Each packaging manufactured under the authority of this special permit must be either (1) marked with the name of the manufacturer and location (city and state) of the facility at which it is manufactured or (2) marked with a registration symbol designated by the Office of Hazardous Materials Special Permits and Approvals for a specific manufacturing facility.

d. A current copy of this special permit must be maintained at each facility where the package is manufactured under this special permit. It must be made available to a DOT representative upon request.

e. JPSI must carry out an in-service testing plan as described below and in the Coleman Powermate letter (ref DOT-SP 12650) dated December 10, 2001 on file with the OHMSPA:

Canister Samples	Pressure Reversal Cycles (each canister)	Test completed by *
3	100	6 months
3	200	12 months
3	300	18 months
3	500	24 months

* Dates are from the first date of canister production

(1) Each canister containing hydrogen absorbed in metal hydride must be subjected to pressure reversal cycles between zero and a settled pressure of 400 psig at 70°F. At the completion of cycling, each canister must be subjected to a burst pressure test in accordance with § 178.46(c)(5)(ii).

(2) JPSI must submit test results to OHMSPA within 14 days of the completion of each six month phase. Test results must include number of cycles completed, cycling pressure, mode of failure, and bursting pressure.

9. MODES OF TRANSPORTATION AUTHORIZED: Motor vehicle, rail freight, cargo vessel, and cargo aircraft only.
10. MODAL REQUIREMENTS: A current copy of this special permit must be carried aboard each cargo vessel, aircraft or motor vehicle used to transport packages covered by this special permit. The shipper must furnish a current 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, 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.:



for Dr. Magdy El-Sibaie
Acting 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
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PO: CWFreeman/sln