U.S. Department
of Transportation
**Research and
Special Programs
Administration**

OCT 3 1 2003

400 Seventh St., S.W.
Washington, D.C. 20590

DOT-E 12650
(SECOND REVISION)

EXPIRATION DATE: September 30, 2005

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. GRANTEE: Ballard Power Systems
Burnaby, British Columbia
(U.S. Agent: Ballard Power Systems Corporation,
Dearborn, Michigan)

2. PURPOSE AND LIMITATION:

a. This exemption authorizes the transportation in commerce of certain hydrogen storage systems for use in fuel cells. This exemption provides no relief from the Hazardous Materials Regulations (HMR) other than as specifically stated herein.

b. The safety analyses performed in development of this exemption only considered the hazards and risks associated with transportation in commerce.

c. Party status will not be granted to this exemption.

3. REGULATORY SYSTEM AFFECTED: 49 CFR Parts 106, 107 and 171-180.

4. REGULATIONS FROM WHICH EXEMPTED: 49 CFR § 173.301a(d)(1) in that the non-specification cylinder is fitted with pressure relief devices that do not meet the requirements of CGA Pamphlet S-1.1 and § 173.301(c) in that the material within the cylinder has the potential to endanger the cylinder's serviceability.

5. BASIS: This exemption is based on the application of Ballard Power Systems dated October 16, 2003 submitted in accordance with § 107.109.

6. HAZARDOUS MATERIALS (49 CFR § 172.101): OCT 31 2003

Hazardous Materials Description			
Proper Shipping Name	**Hazard Class/ Division**	**Identi-fication Number**	**Packing Group**
Hydrogen, absorbed in metal hydride	2.1	NA9279	N/A

7. SAFETY CONTROL MEASURES:

a. PACKAGING - Packaging prescribed is a hydrogen storage system consisting of 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 3.79 pounds. The hydrogen storage system must be in conformance with the following:

(1) Pressure relief devices. The cylinder must be equipped with a CGA CG-7 pressure relief valve with a rated start to discharge pressure of 1,175 psig and with a thermal relief device in accordance with the "Specification for Thermal Relief Device Performance and Quality for Ballard Power Systems #SPC5100353" on file with the Office of Hazardous Materials Exemptions and Approvals (OHMEA). The design of the hydrogen storage system must be in conformance with the "Test Specifications for Pressure Relief Devices on Hydrogen/Metal Hydride Canister Assemblies #SPC5100187" on file with the OHMEA.

(2) The hydrogen storage system must be equipped with an internal geometric configuration or other means that prevents the metal hydride within from exerting detrimental forces on the cylinder. Verification of the design must be on file with the OHMEA.

(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-E 12650-250" must be permanently marked in lieu of "DOT 3AL-1800".

b. TESTING - There is no requirement to periodically retest the hydrogen storage system.

c. OPERATIONAL CONTROLS -

(1) The hydrogen storage system will be used for hydrogen fuel cells to power portable devices.

(2) Refilling must be performed by Ballard Power Systems, or designated agents only.

(3) Inspection and charging of the cylinder must be performed in accordance with "Charge Specification for Hydrogen/Metal Hydride Canister assemblies #SPC5100178".

(4) The maximum charging pressure of the hydrogen storage system must be 400 psig.

(5) The hydrogen storage system is authorized for use for five years from the date of manufacture. At the end of the authorized service life, the hydrogen storage system must be rendered incapable of holding pressure and removed from hazardous material service.

(6) Hydrogen storage systems must be shipped in strong outside packagings in accordance with § 173.301(a)(9).

8. SPECIAL PROVISIONS:

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

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

c. MARKING -

(1) Each hydrogen storage system must be marked "Remove from service after __MM/YY____" (Where MM/YY is the month and year. The date must be 5 years after the manufacture date.)

(2) Each outside packaging must be marked "INSIDE PACKAGING COMPLIES WITH DOT-E 12650".

d. Ballard Power Systems must submit test results to demonstrate compliance with "Specification for Thermal Relief Device Performance and Quality for Ballard Power Systems #SPC5100353" before first shipment of the authorized hydrogen storage systems.

e. Ballard Power Systems must carry out an in-service testing plan as described below and in the Coleman Powermate letter dated December 10, 2001 on file with the OHMEA:

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 230 - 260 psig at 70°F. At the completion of cycling, each canister must be emptied of metal hydride and subjected to a burst pressure test in accordance with 49 CFR § 178.46(c)(5)(ii).

(2) Ballard Power Systems must submit test results to OHMEA 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 and rail freight.

10. MODAL REQUIREMENTS: A current copy of this exemption must be carried aboard each motor vehicle used to transport packages covered by this exemption.

11. COMPLIANCE: Failure by a person to comply with any of the following may result in suspension or revocation of this exemption and penalties prescribed by the Federal hazardous materials transportation law, 49 U.S.C. 5101 et seq:

- All terms and conditions prescribed in this exemption and the Hazardous Materials Regulations, 49 CFR Parts 171-180.

- Registration required by § 107.601 et seq., when applicable.

Each "Hazmat employee", as defined in § 171.8, who performs a function subject to this exemption must receive training on the requirements and conditions of this exemption in addition to the training required by §§ 172.700 through 172.704.

No person may use or apply this exemption, including display of its number, when this exemption has expired or is otherwise no longer in effect.

12. REPORTING REQUIREMENTS: The carrier is required to report any incident involving loss of packaging contents or packaging failure to the Associate Administrator for Hazardous Materials Safety (AAHMS) as soon as practicable. (Sections 171.15 and 171.16 apply to any activity undertaken under the authority of this exemption.) In addition, the holder(s) of this exemption must inform the AAHMS, in writing, of any incident involving the package and shipments made under the terms of this exemption.

Issued in Washington, D.C.:

OCT 31 2003

for Robert A. McGuire
Associate Administrator for
Hazardous Materials Safety

(DATE)

Address all inquiries to: Associate Administrator for Hazardous Materials Safety, Research and Special Programs Administration, Department of Transportation, Washington, D.C. 20590. Attention: DHM-31.

Copies of this exemption may be obtained by accessing the Hazardous Materials Safety Homepage at http://hazmat.dot.gov/exemption Photo reproductions and legible reductions of this exemption are permitted. Any alteration of this exemption is prohibited.

PO: CWF/AM