



**Pipeline and Hazardous
Materials Safety Administration**

APPROVAL CA2008050020

ISSUED BY THE COMPETENT AUTHORITY OF THE UNITED STATES

EXPIRATION DATE:02-28-2014

1. **APPROVAL HOLDER:** **Energy Conversion Devices, Inc. and
Ovonic Hydrogen Systems L.L.C.**
2983 Waterview Drive
Rochester, MI 48309

2. **REGULATORY AUTHORITY:** 49 CFR 173.214.

3. **SYNOPSIS:** Energy Conversion Devices, Inc. and Ovonic
Hydrogen Systems L.L.C. are authorized to offer hydrogen
storage systems that utilize non-DOT specification
cylinders containing hydrogen absorbed in metal hydride,
and in accordance with the provisions of this approval.

4. **BASIS:** This approval is issued in response to Energy
Conversion Devices, Inc. and Ovonic Hydrogen Systems
L.L.C.'s application dated December 11, 2007.

5. **PERIOD OF VALIDITY AND CONDITIONS OF APPROVAL:** This
approval does not provide relief from any requirements of
the Hazardous Materials Regulations (HMR) except as stated
herein. This approval is valid until the posted expiration
date or until terminated by the Associate Administrator for
Hazardous Materials Safety.
 - a. **Approved Material:** Only the following article may be
offered for transportation under the terms of this
approval:

Proper shipping name-Hazardous materials description	Hazard Class/ Division	Identi- fication Number	Packing Group
Hydrogen in a metal hydride storage system	2.1	UN3468	N/A

b. Packaging: Packaging prescribed 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 5 pounds. The hydrogen storage system must be manufactured and certified in accordance with Ovonic Hydrogen Systems (OHS) Internal Product Standard 550002-2003 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-7 pressure relief device with a rated start to discharge pressure of at least 1,175 psig and with a CGA CG-10 thermal relief device. Alternatively, each cylinder may be equipped with a CGA CG-12 combination relief device meeting both the criteria of the CG-7 and CG-10 devices above, in accordance with the CGA Pamphlet S-1.1. For cylinders less than 4½ inches (114mm) in diameter and 12 inches (305mm) in overall length, a CGA CG-9 217°F fusible plug is authorized as recommended in CGA Pamphlet S-1.1. The entire hydrogen storage system must successfully pass a fire test as described in CGA Pamphlet C-14. The system must be fire tested by an independent testing laboratory.

(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 OHMSPA.

(3) The cylinder must be designed, manufactured, and tested in accordance with OHS Internal Product Standard 550002-2003 on file with the OHMSPA. The cylinder must be in conformance with all requirements of a DOT Specification 3AL-1800 cylinder (49 CFR §§ 178.35 and 178.46).

6. **MODES OF TRANSPORTATION AUTHORIZED**: As authorized in the HMR.

7. **SPECIAL PROVISIONS:**

a. A current copy of this approval must be maintained and made available for examination at each location where materials are packaged and offered for transportation, and a current copy of this approval must be carried on board each motor vehicle, vessel, and aircraft used in transportation under its authority.

b. Any person who offers for transportation the described materials may do so under the authority of this approval if all requirements of this approval.

8. **GENERAL PROVISIONS:**

a. Failure by any person to comply with the terms and conditions of this approval and the Hazardous Materials Regulations, 49 CFR Parts 171-180, may result in the modification, suspension or termination of that person's authority to use this approval. Failure to comply may also subject that person to penalties prescribed by 49 U.S.C. §§ 5123 and 5124. This approval may be modified, suspended or terminated in its entirety if that action is justified in light of changes in circumstances or additional information not available when this approval was issued. Unless immediate modification, suspension or termination is necessary to avoid a risk of significant harm to persons or property, before action is taken, that person will be notified and provided with an opportunity to show why the proposed action should not be taken.

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

c. Any person operating under the terms of this approval must comply with the security plan requirement in Subpart I of Part 172 of the HMR, when applicable.

Issued in Washington, D.C.

Dated: 03/26/2009

A handwritten signature in blue ink that reads "Harpreet K. Singh". The signature is written in a cursive style and is positioned above the typed name of the signatory.

For Theodore L. Willke
Associate Administrator for Hazardous Materials Safety

Address all inquiries to: Associate Administrator for Hazardous Materials Safety, Pipeline and Hazardous Materials Safety Administration, Department of Transportation, Washington, D.C. 20590. Attention: PHH-30.