DGP-WG/05-IP/11
17/4/05

DANGEROUS GOODS PANEL (DGP)

MEETING OF THE WORKING GROUP OF THE WHOLE

Montreal, 18 to 22 April 2005

Agenda Item 2: Development of recommendations for amendments to the *Technical Instructions* for incorporation in the 2007/2008 edition
2.8: Part 8 - Provisions Concerning Passengers and Crew

MICRO FUEL CELLS AND FUEL CARTRIDGE BRIEFING PAPER

This paper is provided for the information of the Working Group.

MICRO FUEL CELLS AND FUEL CARTRIDGE BRIEFING PAPER

Objective: *The fuel cell and methanol industries intend to present a formal request seeking an exclusion for passengers and crew to carry and use micro fuel cell devices and methanol fuel cartridges aboard aircraft at the October 2005 Dangerous Goods Panel 20 Meeting.*

Background

As portable electronic devices continue to evolve, current battery technology is having trouble keeping pace. From the United States to Europe and Asia, consumer electric manufacturers are developing micro fuel cell technologies to power the next generation of laptop computers, cellular phones and other essential modern devices. Using liquid methanol (also known as "wood alcohol"), micro fuel cells represent a completely new portable power technology. Safety codes and transportation regulations are being developed to ensure that this technology is safe to put in the consumer's hands. Standards and regulatory requirements have existed for many years for batteries and consumer electronics products. Fuel cell equipment will need to meet the existing standards for electronic products plus new requirements specific to fuel cell equipment and methanol fuel cartridge.

UN Committee of Experts on the Transport of Dangerous Goods Action

International regulatory authorities at the United Nations working with the U.S., Japan and other delegations have established the basic requirements for cargo shipping of methanol fuel cell cartridges and fuel cell electronic equipment in all modes of transport. Methanol fuel cell powered electronic products may be cargo-shipped today as UN 3363 (Dangerous goods in machinery or apparatus). On December 1st, 2004, the UN Committee of Experts approved a proposal creating a new UN shipping description (UN 3473 – "Fuel Cell Cartridges containing flammable liquids"), and packing instruction (P-003) for the cargo shipment of methanol fuel cell cartridges. The new shipping description and packing instruction for fuel cell cartridges containing flammable liquids, including methanol (Class 3), are designed to prevent any consumer contact with the methanol fuel. A new special provision (328) requires fuel cell cartridge design types without their packaging to pass an internal pressure test at a pressure of 100 kPa (gauge).

Safety Codes & Standards Being Developed

Canadian Standards Association (CSA) & America and Underwriters Laboratories Inc. (UL): Standards development organizations CSA America and Underwriters Laboratories are developing a safety standard for the design and manufacture of micro fuel cell power systems and methanol fuel cartridges. ANSI/UL 2265/CSA America FC11 is anticipated for publication in 2005. UL has separately announced the publication of an Outline of Investigation, Subject 2265A, covering the safety certification of methanol-fueled micro fuel cells for use in information technology equipment. With this newly published document, UL can now immediately provide safety certification services for micro fuel cells. The full standard is expected to be completed in 2005. **www.ul.com**

International Electrotechnical Commission (IEC): The IEC is developing international standards (IEC TC 105) for the performance, safety and interchangeability of methanol fuel cell devices and fuel cartridges. This Standard will include the following tests: vibration, drop, extreme temperature, altitude simulation, crush, leak, and short-circuit. Initiated in 2002, it is expected that this Safety Standard will be completed in draft form during 2005, with performance and interchangeability standards being completed sometime thereafter. The current draft of this safety standard, draft 9A, can be downloaded and reviewed at: **www.usfcc.com/IEC_TC_105_W8_9A.pdf** or **www.usfcc.com/IEC_TC_105_W8_9A.doc**. The IEC TC 105 WG 8 members can accept comments on this draft from ICAO DGP members by their next meeting on May 16th. Please send all comments to: Brian Walsh, US Fuel Cell Council, at **walsh@usfcc.com.**

USFCC: 1100 H Street, NW, Suite 800 Washington, DC 20005 – (202) 293-5500 – www.usfcc.org
MI: 4100 N. Fairfax Drive, Suite 740, Arlington, VA 22203 – (703) 248-3636 – www.methanol.org