



WORKING PAPER

**DANGEROUS GOODS PANEL (DGP)
MEETING OF THE WORKING GROUP OF THE WHOLE**

Memphis, 30 April to 4 May 2007

Agenda Item 2: Development of recommendations for amendments to the *Technical Instructions for the Safe Transport of Dangerous Goods by Air* (Doc 9284) for incorporation in the 2009/2010 Edition

2.8: Part 8 — Provisions Concerning Passengers and Crew

CARRIAGE OF FUEL CELLS BY PASSENGERS AND CREW

(Presented by the USFCC)

SUMMARY

This working paper proposes to align the ICAO provisions concerning Passengers and crew with the latest UN Provisions for fuel cells and permit the carriage of these fuel systems by passengers and crew, in carry-on baggage.

Action by the DGP-WG is in paragraph 2.

1. INTRODUCTION

1.1 The UN Committee of Experts on the Transport of Dangerous Goods (UNCOE) agreed, at its third session held in Geneva on 14 December 2006, to add in the UN Model Regulations 4 new entries to cover fuel cell cartridges containing fuels in classes or division 2.1, 4.3 and 8.

2. ACTION BY THE DGP-WG

2.1 The DGP-WG is invited to align the ICAO provisions concerning passengers and crew with the latest UN Provisions for fuel cells and permit the carriage of these fuel systems, in carry-on baggage, by passengers and crew, as follows:

1.1 DANGEROUS GOODS CARRIED BY PASSENGERS OR CREW

...

1.1.2 The provisions of these Instructions do not apply to the following when carried by passengers or crew members or in baggage, transported by the operator, that has been separated from its owner during transit (e.g. lost baggage or improperly routed baggage):

...

- r) portable electronic devices (for example cameras, cellular phones, laptop computers and camcorders) powered by fuel cell systems, and spare fuel cartridges, under the following conditions:
- 1) fuel cell cartridges may only contain flammable liquids ~~(including methanol), formic acid and butane,~~ corrosive substances, liquefied flammable gas, water reactive substances or, hydrogen in metal hydride;
 - 2) fuel cell cartridges must comply with ~~International Electrotechnical Commission (IEC) PAS 62282-6-1 Ed. 1;~~
 - 3) fuel cell cartridges must not be refillable by the user. Refuelling of fuel cell systems is not permitted except that the installation of a spare cartridge is allowed. Fuel cell cartridges which are used to refill fuel cell systems but which are not designed or intended to remain installed (fuel cell refills) are not permitted to be carried;
 - 4) the maximum quantity of fuel in any fuel cell cartridge must not exceed:
 - a) for liquids 200 mL;
 - b) for solids 200 grams;
 - c) for liquefied gases, 120 mL for non-metallic fuel cell cartridges or 200 ml for metal fuel cell cartridges;
 - d) for hydrogen in metal hydride the fuel cell cartridges shall have a water capacity of 120 mL or less;
 - 5) each fuel cell cartridge must be marked with a manufacturer's certification that it conforms to IEC PAS 62282-6-1 Ed. 1, and with the maximum quantity and type of fuel in the cartridge;
 - 6) each fuel cell system must conform to IEC PAS 62282-6-1 Ed. 1, and must be marked with a manufacturer's certification that it conforms to the specification;
 - 7) no more than two spare fuel cell cartridges may be carried by a passenger;
 - 8) fuel cell systems containing fuel and fuel cell cartridges including spare cartridges are permitted in carry-on baggage only;
 - 9) interaction between fuel cells and integrated batteries in a device must conform to IEC PAS 62282-6-1 Ed. 1. Fuel cell systems whose sole function is to charge a battery in the device are not permitted;
 - 10) fuel cell systems must be of a type that will not charge batteries when the portable electronic device is not in use and must be durably marked by the manufacturer: "APPROVED FOR CARRIAGE IN AIRCRAFT CABIN ONLY" to so indicate; and
 - 11) in addition to the languages which may be required by the State of Origin for the markings specified above, English should be used.

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