



WORKING PAPER

DANGEROUS GOODS PANEL (DGP)

TWENTY-FIRST MEETING

Montréal, 5 to 16 November 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

SPARE FUEL CELL CARTRIDGES IN CHECKED BAGGAGE

(Presented by the US Fuel Cell Council (USFCC))

SUMMARY

This paper proposes to amend Part 8;1.1.2 r) 8) to allow fuel cell spare cartridges in checked baggage. Filing this paper is a follow-up to discussion at the DGP Working Group of Whole in Memphis, Tennessee regarding “an appropriate alternative for the carriage of spare fuel cell cartridges by passengers”.

Action by the DGP is in paragraph 3.

1. INTRODUCTION

1.1 The international security restriction on liquids and gels in passenger carry-on baggage and the new ICAO aviation security provisions have limited the usefulness of the provisions of the *Technical Instructions for the Safe Transport of Dangerous Goods by Air* (Doc 9284) (8;1.1.2 r) 8)) for the carriage of fuel cell system spare cartridges in carry-on baggage as any receptacle containing more than 100 ml of liquid will be confiscated at the airport security check. Because of this security restriction, passengers are encouraged to carry any article or receptacle containing liquid in excess of 100 ml in their checked baggage. Unfortunately, placing spare fuel cartridges in checked baggage is not an alternative as the Technical Instructions prohibits their carriage in checked baggage.

1.2 The DGP Working Group of the Whole Meeting in Memphis, Tennessee (DGP-WG07) was provided more background on this topic ([DGP-WG/07-IP/1](#) (English only)). Since DGP-WG07, the fuel cell industry has been advised that the prohibition on liquids in containers with a volume over 100 mL is likely to remain in place for at least two years while new technology is developed for

screening. For this reason, an appropriate alternative for spare fuel cell cartridges with a volume over 100 mL is proposed in this paper.

2. DISCUSSION

2.1 Certain fuel cell systems containing fuel and fuel cell cartridges including spare cartridges are permitted in carry-on baggage (see Part 8;1.1.2) but are not permitted in checked baggage. This limitation was initially introduced to ensure that a fuel cell unit carried by a passenger is not operated in an unsupervised environment such as a baggage compartment.

2.2 Part 8;1.1.2 allows passengers and crew to carry as checked baggage up to 2 kg or 2 L (net quantity of each single article must not exceed 0.5 kg or 0.5 L) of medicinal or toilet articles, including aerosols such as hair sprays, perfumes, colognes and medicine containing alcohols. Butane and other liquefied petroleum gases (LPG) are often used to pressurize aerosols as the use of fluorocarbons propellants is being phased out because of their effect on atmospheric ozone. These passengers' provisions have been effective for a long time without any notable difficulty.

2.3 On 10 August 2006, the United States raised its aviation terror threat, after a plot to blow up planes heading to the United States was uncovered in London. New security requirements banned liquids and gels from all carry-on luggage, forcing passengers to throw away, or transfer to checked baggage when possible, beverages, shampoo, hair gel, perfume, liquid cosmetics and toothpaste exceeding a specified maximum amount. These security measures were quickly adopted by other States and ICAO. The current security ban on liquids and gels in carry-on baggage allows up to 100 mL (3 ounces) of selected liquids, gels and aerosol products.

2.4 Fuel cell cartridges must conform to IEC PAS 62282-6-1 Ed.1 and must be marked with a manufacturer's certification that it conforms to the IEC specification. Basically, the cartridge is a sophisticated receptacle, manufactured to stringent specifications, containing a specific fuel. The cartridge does not contain an ignition device or a battery and cannot produce electricity on its own. The cartridge is an article that contains the fuel (and activator) only and does not have the ability to be actuated or to short-circuit or to charge batteries on its own.

2.5 To provide the highest level of safety, used cartridges are not proposed as checked baggage.

3. ACTION BY THE DGP

3.1 The DGP is invited to *amend* Part 8;1.1.2 r) 8) as indicated below:

- 8) ~~fuel cell systems containing fuel and fuel cell cartridges including spare cartridges are permitted in carry-on baggage only.~~ Spare cartridges are permitted in checked baggage provided they are new, unused, and in their original retail packaging;