International Civil Aviation Organization

DGP-WG/15-WP/24
16/3/15

WORKING PAPER

DANGEROUS GOODS PANEL (DGP)
WORKING GROUP MEETING (DGP-WG/15)

Montreal, 27 April to 1 May 2015

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 2017-2018 Edition

2.8: Part 8 — Provisions Concerning Passengers and Crew

RESTRICTIONS FOR E-CIGARETTES CARRIED BY PASSENGERS AND CREW

(Presented by C. Glasow)

SUMMARY

This paper proposes to amend Table 8-1 to restrict the carriage of portable electronic smoking devices (e.g. e-cigarettes) in checked baggage and restrict charging of the e-cigarette on board the aircraft.

Action by the DGP-WG: The DGP is invited to consider the amendment to the provisions for dangerous goods carried by passengers or crew as shown in the appendix to this working paper.

1. INTRODUCTION

1.1 The use of e-cigarettes has been increasing substantially worldwide in the past several years. In 2013, it is estimated that United States e-cigarette sales totalled U.S.$1.7 billion. E-cigarettes are becoming an everyday common item and are carried with growing frequency in passenger baggage. As discussed at the DGP Working Group of the Whole Meeting in Rio de Janeiro, Brazil (DGP-WG/14, 20 to 24 October 2014) (see paragraph 3.5.6.7 of the DGP-WG/14 Report), e-cigarettes have been considered personal electronic devices (PED) in some cases, but the provisions for PEDs do not adequately cover the risks posed. It is the heating element that makes the risk with e-cigarettes different than a PED. The entry in Table 8-1 for battery powered equipment capable of generating extreme heat was considered by some panel members to be more appropriate to address the risk. However, that provision allows devices in checked baggage provided the power source or a fuse etc. is removed and requires operator approval — conditions not considered appropriate for e-cigarettes. The discussion at DGP-WG/14 concluded that a new entry in Part 8, Table 8-1 on the specific risks posed by portable electronic smoking devices was necessary since e-cigarettes did not fit into any of the existing entries (see Appendix B for an extract from the DGP-WG/14 report).

1.2 In order to bring prompt attention to the risks associated with e-cigarettes, the DGP also agreed to immediately issue an Electronic Bulletin (EB) titled Dangerous Goods Carried by Passengers and Crew — Incidents Related to Electronic Cigarettes (EB 2014/074). The EB was issued on 10 December 2014,and recommends that a passenger's e-cigarettes be carried in the cabin of the aircraft and not in checked baggage. The e-bulletin is provided in Appendix C to this working paper.

1.3 In the United States there have been two recent fire incidents involving e-cigarettes in a passenger's checked baggage. In August 2014, at Boston, Massachusetts' Logan Airport, an e-cigarette contained in a passenger's checked baggage caused a fire in the cargo hold of a passenger aircraft forcing an evacuation of the aircraft. In January 2015, at Los Angeles International Airport, an e-cigarette in a passenger's checked baggage had missed its intended flight and was found to be on fire in a baggage area of the airport. Emergency responders attribute the fire to an overheated e-cigarette inside the baggage.

1.4 Appendix A contains the proposed provision for a new entry in Table 8-1. The entry title, "Battery powered portable electronic devices", was written without any mention of lithium batteries so that this new entry would also cover e-cigarettes powered by other battery sources (e.g. nickel-metal hydride).

1.5 Most of today's larger e-cigarettes are powered by one 18650 lithium ion cell or two CR123A lithium ion cells. Under both these lithium ion battery configurations, the total Watt-hours (Wh) for the battery would be well under 20 Wh. Lithium metal batteries are becoming less popular for e-cigarettes. Typically, a lithium metal battery is utilized in the smaller diameter, disposable e-cigarettes that would be well under 1 gram of lithium metal. These lithium battery limits were entered in the proposal with square brackets to generate discussion from the panel before finalizing the lithium metal content and watt-hour rating limits.

1.6 The proposal restricts the charging of an e-cigarette while on board the aircraft. This would include the utilization of any electrical power source to include an on-board power supply, laptop computer, or portable battery power pack. The main concern with the charging of e-cigarettes stems from a concern with the battery exploding or catching fire while being charged. The concern with the hazards in charging e-cigarettes is well documented in a recent United States Fire Administration document[1].

2. ACTION BY THE DGP-WG

2.1 The DGP is invited to consider the amendment to the provisions for dangerous goods carried by passengers or crew as shown in Appendix A to this working paper. As discussed at DGP-WG/14, this new provision is being proposed as an addendum to the 2015-2016 Edition of the Technical Instructions.

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[1] U.S. Fire Administration. (October 2014). *Electronic Cigarette Fires and Explosions.* Retrieved from https://www.usfa.fema.gov/downloads/pdf/publications/electronic_cigarettes.pdf

APPENDIX A

PROPOSED AMENDMENT TO PART 8 OF THE TECHNICAL INSTRUCTIONS

Part 8

PROVISIONS CONCERNING PASSENGERS AND CREW

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Table 8-1. Provisions for dangerous goods carried by passengers or crew

Items or articles		*Location*			*Approval of the operator(s) is required*	*The pilot-in-command must be informed*	*Restrictions*
		Checked baggage	*Carry-on baggage*	*On the person*			
. . .							
Consumer articles							
. . .							
[19])	Battery powered portable electronic smoking devices (e.g. e-cigarettes, e-cigs, e-cigars, e-pipes, personal vaporizers, electronic nicotine delivery systems)	No	Yes	Yes	No	No	a) spare batteries must be individually protected so as to prevent short circuits (by placement in original retail packaging or by otherwise insulating terminals, e.g. by taping over exposed terminals or placing each battery in a separate plastic bag or protective pouch); b) each lithium battery must not exceed the following: — for lithium metal batteries, a lithium content of not more than [2] grams; or — for lithium ion batteries, a Watt-hour (Wh) rating of not more than [100] Wh; c) each lithium battery must be of a type which meets the requirements of each test in the UN *Manual of Tests and Criteria*, Part III, subsection 38.3; d) the devices must not be charged on board the aircraft.
~~19~~20)	Portable electronic devices (such as watches, calculating machines, cameras, cellular phones, laptop computers, camcorders)						
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APPENDIX B

EXTRACT FROM THE REPORT OF THE MEETING OF THE DGP WORKING GROUP OF THE WHOLE (DGP-WG/14)

Rio de Janeiro, Brazil, 20 to 24 October 2014

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3.5.6.7 **Passenger provisions to carry e-cigarettes**

3.5.6.7.1 Although not raised in a working paper, the working group was asked to discuss safety concerns related to the carriage of e-cigarettes by passengers. Several incidents had been reported involving e-cigarettes overheating by way of their heating element being accidentally activated resulting in a fire in checked baggage. These e-cigarettes had been considered personal electronic devices (PEDs) in some cases, but it was suggested that the restrictions placed on PEDs in Table 8-1 of the passenger provisions did not adequately address the risks posed. The PED provision provided examples of electronic battery powered devices such as cameras, watches and cell phones, none of which contain a heating element. It was suggested that the restrictions placed in the passenger provisions for battery-powered equipment capable of generating extreme heat, which could cause a fire if activated (Table 8-1, item 16), more appropriately addressed the risks, but that the provision to carry these devices as checked baggage and the need for operator approval should not apply to e-cigarettes. It was agreed that a new entry based on the specific risks posed by e-cigarettes was necessary. An amendment would be proposed at DGP-WG/15 for incorporation in the 2015-2016 Edition of the Technical Instructions by way of an addendum, but the working group was asked to consider what measures could be taken in the near-term to address the risk.

3.5.6.7.2 The working group shared the concerns raised and agreed that an amendment to Table 8-1 was necessary but did not believe an amendment should be made in haste and that a proposal for consideration at DGP-WG/15 was more appropriate. All supported the need for outreach to ensure that the safety risks were known. The Secretary suggested that an e-Bulletin to all States could be issued along with guidance material on the ICAO public website. Members agreed that this was an appropriate way forward and would undertake efforts to disseminate the information conveying the risks posed by e cigarettes carried in checked baggage as widely as possible within their States.

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APPENDIX C

ELECTRONIC BULLETIN ON ELECTRONIC CIGARETTES CARRIED BY PASSENGERS AND CREW

International Civil Aviation Organization

ELECTRONIC BULLETIN

For information only

EB 2014/074
AN 11/2.1

DANGEROUS GOODS CARRIED BY PASSENGER AND CREW — INCIDENTS RELATED TO ELECTRONIC CIGARETTES

1. Electronic cigarettes are being carried by passengers in increasing numbers. Several incidents have been reported involving electronic cigarettes overheating through the accidental activation of their heating elements resulting in fires in checked baggage. The Dangerous Goods Panel (DGP) will be addressing this safety risk at its next panel meeting which will likely result in an amendment to the *Technical Instructions for the Safe Transport of Dangerous Goods by Air* (Doc 9284). Until such time, States are encouraged to inform operators of this safety risk and to recommend that they require passengers to carry such devices in the cabin, where an incident can be immediately mitigated, and not in checked baggage.

2. Electronic cigarettes, also called personal vaporizers or electronic nicotine delivery systems, are battery-powered devices that simulate tobacco smoking by producing a heated vapour which resembles smoke. The devices have a heating element to vaporize a liquid solution. Passengers are normally permitted to carry these devices under the provisions for dangerous goods carried by passengers and crew contained in Part 8 of Doc 9284.

3. Background information on this subject can be found in the report of the DGP Meeting that was held from 20 to 24 October 2104 in Rio de Janeiro, Brazil (DGP-WG/14). The report is available on the DGP website at http://www.icao.int/safety/DangerousGoods/Pages/DGP.aspx.

Issued under the authority of the Secretary General

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