



**WORKING PAPER**

**DANGEROUS GOODS PANEL (DGP)  
WORKING GROUP MEETING (DGP-WG/16)**

**Montreal, 17 to 21 October 2016**

**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 2019-2020 Edition**

**2.8: Part 8 — Provisions Concerning Passengers and Crew**

**REVISION TO PART 8**

(Presented by M. Paquette)

**SUMMARY**

This working paper proposes revisions to the provisions of Part 8. The purpose is to simplify the provisions.

**Action by the DGP:** The DGP-WG is invited to comment on the proposal to modify Table 8-1 and introduce a Table 8-2 as shown in the appendix to this working paper.

**1. INTRODUCTION**

1.1 At the twenty-fifth meeting of the Dangerous Goods Panel (DGP/25) a working paper (DGP/25-WP/50, see paragraph 2.8.4 of the DGP/25 Report) was presented proposing to simplify the provisions of Table 8-1. It proposed to remove redundant text that is repeated in multiple entries in Table 8-1 and to group entries based on danger/hazard in order to limit the number of specific entries. Discussion on this working paper was brief given the time constraints at DGP/25 and the fact that it had been submitted late. However, there was strong support for the philosophy used in restructuring the provisions. It was recognized that a table that is easy to navigate and that uses simple terminology was desirable.

1.2 The principle behind Part 8 is that dangerous goods not covered in Table 8-1 are forbidden to be carried by passengers and crew either in carry-on baggage, as checked baggage, or on their person.

1.3 Table 8-1 presents constant challenges as more items containing dangerous goods enter the market and, unless they meet the provisions in the existing entries, they cannot be carried in baggage.

For this reason the Dangerous Goods Panel has frequently amended Table 8-1 to introduce new items. In addition, some entries are long and repetitious (e.g. the reference to the tests in the UN *Manual of Test and Criteria*, Part III, subsection 38.3 for lithium batteries is repeated seven times in Table 8-1).

1.4 It is proposed to simplify Table 8-1 to introduce generic groupings by danger/hazard/function rather than listing each type of item that contains dangerous goods. These include:

- a) batteries;
- b) battery-powered mobility aids;
- c) fire/flame/fuel sources/extreme heat generation;
- d) gases in cylinders and cartridges;
- e) radioactive materials;
- f) mercury; and
- g) miscellaneous dangerous goods.

1.5 Some provisions of Table 8-1 do not impose limits on the quantities of items that can be carried. Salespersons/retailers have been observed bringing large quantities of items such as lithium batteries contained in equipment in their baggage. We propose to modify Part 8;1.1.2 to specify that the dangerous goods permitted in Table 8-1 are to be carried by passengers or crew for non-commercial use only.

1.6 The lithium battery entry includes any equipment (e.g. portable electronic devices, medical equipment, toys, power tools, etc.) that contains lithium batteries. It is proposed that all lithium batteries be carried in the cabin where, in the eventuality of an incident, it can be dealt with promptly. This would restrict the size of the equipment and/or require the removal of a battery from its equipment for carriage in the cabin.

1.7 The electronic baggage tags provisions which were accepted at DGP/25 will be added once the Airworthiness Panel has completed its review of the potential for electromagnetic interference with aircraft systems.

1.8 References to “on the person” were removed from Part 8. The only time “on the person” is considered is in the case of lighters and matches. The restrictions for lighters and matches specify that the lighter or small packet of safety matches must be carried on the person.

1.9 Three entries were grouped together as all their conditions are identical and their total net quantity is limited. These include “non-radioactive medicinal articles (including aerosols)”, “toiletry articles (including aerosols)” and “aerosols in Division 2.2, with no subsidiary risk, for sporting or home use”. Condition 17) c) was added since a Division 2.2 aerosol for home and sporting use could be animal deterrent spray. As a result, aerosols in 2.2 are allowed in cabin.

1.10 We have also introduced a new Table 8-2 that contains instruments that are meant to be carried by the Organization for the Prohibition of Chemical Weapons and government. These entries are therefore removed from Table 8-1 as they are quite specific in use.

## 2. ACTION BY THE DGP-WG

2.1 The DGP-WG is invited to discuss the proposed amendments shown in the appendix to this paper and to provide comments.

2.2 The DGP-WG is invited to discuss the following questions: In the case of:

- a) Cartridges of Division 2.2 with no subsidiary risk not fitted into a self-inflating personal safety device (Item 13)), should a restriction stating that “cartridges must not be installed in devices that are used for shooting or projecting articles” be included as air guns and nailers have such cartridges?
- b) Non-radioactive medicinal articles (including aerosols), toiletry articles (including aerosols) and aerosols in Division 2.2 with no subsidiary risk (Item 17)), should examples be provided (e.g. hair sprays, perfumes, colognes, medicines containing alcohols and insect repellent)?
- c) Non-infectious specimens in flammable solutions (Item 21)), should they be moved in the “Fire/Flame/Fuel sources/extreme heat generation” section rather than the “Miscellaneous dangerous goods” section?
- d) Refrigerated liquid nitrogen contained in insulated packagings (Item 22)), should they be moved in the “Gases in cylinders and cartridges” section rather than the “Miscellaneous dangerous goods” section?

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## APPENDIX

### PROPOSED AMENDMENT TO PART 8 OF THE TECHNICAL INSTRUCTIONS

#### Part 8

### PROVISIONS CONCERNING PASSENGERS AND CREW

#### Chapter 1

### PROVISIONS FOR DANGEROUS GOODS CARRIED BY PASSENGERS OR CREW

#### 1.1 DANGEROUS GOODS CARRIED BY PASSENGERS OR CREW

1.1.1 Except as otherwise provided in 1.1.2, dangerous goods, including excepted packages of radioactive material, must not be carried by passengers or crew members, either as or in carry-on baggage or checked baggage ~~or on the person~~. Except as provided for in Table 8-1, ~~34 23~~, security type equipment such as attaché cases, cash boxes, cash bags, etc., incorporating dangerous goods, for example lithium batteries or pyrotechnic material, are totally forbidden; see entry in Table 3-1. ~~Personal medical oxygen devices that utilize liquid oxygen are forbidden either as or in carry-on baggage or checked baggage or on the person. Electroshock weapons (e.g. tasers) containing dangerous goods such as explosives, compressed gases, lithium batteries, etc., are forbidden in carry-on baggage or checked baggage or on the person. The following dangerous goods may be commonly carried by passengers on other modes of transport; however, they are prohibited either as or in carry-on baggage or checked baggage:~~

- ~~a) personal medical oxygen devices that utilize liquid oxygen;~~
- ~~b) electroshock weapons (e.g. tasers) containing dangerous goods such as explosives, compressed gases, and lithium batteries;~~
- ~~c) "strike anywhere" matches;~~
- ~~d) lighter fuel and lighter refills; and~~
- ~~e) premixing burner lighter (see the Glossary of Terms in Attachment 2) without a means of protection against unintentional activation.~~

1.1.2 Notwithstanding any additional restrictions which may be implemented by States in the interests of aviation security, except for the incident reporting provisions of 7;4.4 or 7;4.5, as applicable, the provisions of these Instructions do not apply to the dangerous goods listed in Table 8-1 when carried by passengers or crew members for non-commercial use only or in baggage that has been separated from its owner during transit (e.g. lost baggage or improperly routed baggage) or in excess baggage carried as cargo as permitted by 1;1.1.5.1 g):

Note.— Exceptions found in these Instructions are not reproduced in Table 8-1. The following dangerous goods are not subject to these Instructions:

- a) radio-pharmaceuticals contained within the body of a person must be as the result of medical treatment; and
- b) energy efficient lamps when in retail packaging and intended for personal or home use (see 1;2.6).

1.1.3 Carry-on baggage includes any dangerous goods listed in Table 8-1 carried "on the person". Carry-on baggage must be carried inside the cabin. Any baggage/item that is not carried inside the cabin must follow the provisions/restrictions for checked baggage. This includes baggage intended as carry-on but that is taken at the gate or planeside by the operator and placed into the cargo hold for carriage.

1.1.4 The entry in Table 8-1 that most appropriately describes the item or article must be selected. For instance, electronic cigarettes must meet the requirements of the entry for "Battery-powered portable electronic smoking devices" not the entries for lithium batteries or non-spillable batteries.

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

*Replace Table 8-1 with the following:*

<i>Items or articles</i>	<i>Location</i>		<i>Approval of the operator(s) is required</i>	<i>The pilot-in-command must be informed</i>	<i>Restrictions</i>
	<i>Checked baggage</i>	<i>Carry-on baggage</i>			
<b>Batteries</b>					
1) Lithium batteries	No	Yes	(see c) and d))	No	<ul style="list-style-type: none"> <li>a) batteries must be of a type which meets the requirements of each test in the <i>UN Manual of Tests and Criteria</i>, Part III, subsection 38.3;</li> <li>b) each battery must not exceed the following: <ul style="list-style-type: none"> <li>i) for lithium metal batteries, a lithium content of 2 grams; or</li> <li>ii) for lithium ion batteries, a Watt-hour rating of 100 Wh;</li> </ul> </li> <li>c) batteries may exceed 100 Wh but not exceed 160 Wh Watt-hour rating for lithium ion with the approval of the operator;</li> <li>d) batteries may exceed 2 grams but not exceed 8 grams lithium content for lithium metal for portable medical electronic devices with the approval of the operator;</li> <li>e) spares 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); and</li> <li>f) no more than two spare batteries exceeding 2 grams lithium content for lithium metal or a Watt-hour rating exceeding 100 Wh for lithium ion may be carried per person.</li> </ul>

<i>Items or articles</i>	<i>Location</i>		<i>Approval of the operator(s) is required</i>	<i>The pilot-in-command must be informed</i>	<i>Restrictions</i>
	<i>Checked baggage</i>	<i>Carry-on baggage</i>			
2) Non-spillable batteries	Yes	Yes	No	No	a) must meet the requirements of Special Provision A67; b) the battery must not exceed a voltage of 12 volts and a Watt-hour rating of 100 Wh; c) the battery must be protected from short circuit by the effective insulation of exposed terminals; d) no more than two spare batteries per person; and e) if contained in equipment, the equipment must be either protected from inadvertent activation, or the battery must be disconnected and its exposed terminals insulated.
3) Battery-powered portable electronic smoking devices (e.g. e-cigarettes, e-cigs, ecigars, e-pipes, personal vaporizers, electronic nicotine delivery systems)	No	Yes	No	No	a) if powered by lithium batteries, must comply with restrictions of 1) a), b), e); and b) recharging of the devices and/or batteries on board the aircraft is not permitted.
4) Battery-powered equipment capable of generating extreme heat, which could cause a fire if activated (e.g. underwater high intensity lamps)	(see b))	Yes	Yes	No	a) the battery(ies) must be removed from the equipment and be protected against short circuit (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); and b) if powered by lithium batteries, the batteries must comply with restrictions of 1) a) and b) and be carried in the cabin.
5) Battery-powered mobility aids (e.g. wheelchairs)	Discussed under DG-WG/16-WP/37				

**Fire/flame/fuel sources/extreme heat generation**

6) Small cigarette lighter	No	Yes	No	No	a) no more than one per person;
Small packet of safety matches					b) must be carried on the person;
Premixing burner lighter (see the Glossary of Terms in Attachment 2) with a means of protection against unintentional activation					c) intended for use by an individual; and d) does not contain unabsorbed liquid fuel (other than liquefied gas).

Items or articles	Location		Approval of the operator(s) is required	The pilot-in-command must be informed	Restrictions
	Checked baggage	Carry-on baggage			
7) Alcoholic beverages containing more than 24 per cent but not more than 70 per cent alcohol by volume	Yes	Yes	No	No	<p>a) must be in retail packagings;</p> <p>b) no more than 5 L per individual receptacle; and</p> <p>c) no more than 5 L total net quantity per person for such beverages.</p> <p><i>Note.— Alcoholic beverages containing not more than 24 per cent alcohol by volume are not subject to any restrictions.</i></p>
8) Internal combustion engines or fuel cell engines	Yes	No	No	No	Must comply with Special Provision A70.
9) Fuel cells	No	Yes	No	No	a) fuel cell cartridges may only contain flammable liquids, corrosive substances, liquefied flammable gas, water reactive substances or hydrogen in metal hydride;
Spare fuel cell cartridges	Yes	Yes	No	No	<p>b) refuelling of fuel cells on board an aircraft is not permitted except that the installation of a spare cartridge is allowed;</p> <p>c) the maximum quantity of fuel in any fuel cell or fuel cell cartridge must not exceed:</p> <ul style="list-style-type: none"> <li>— for liquids 200 mL;</li> <li>— for solids 200 grams;</li> <li>— for liquefied gases, 120 mL for non-metallic fuel cell cartridges or 200 mL for metal fuel cell or fuel cell cartridges; and</li> <li>— for hydrogen in metal hydride, the fuel cell or fuel cell cartridges must have a water capacity of 120 mL or less;</li> </ul> <p>d) each fuel cell and each fuel cell cartridge must conform to IEC 62282-6-100 Ed. 1, including Amendment 1, and must be marked with a manufacturer's certification that it conforms to the specification. In addition, each fuel cell cartridge must be marked with the maximum quantity and type of fuel in the cartridge;</p> <p>e) fuel cell cartridges containing hydrogen in metal hydride must comply with the requirements in Special Provision A162;</p> <p>f) no more than two spare fuel cell cartridges may be carried by a passenger;</p> <p>g) fuel cells containing fuel are permitted in carry-on baggage only;</p> <p>h) interaction between fuel cells and integrated batteries in a device must conform to IEC 62282-6-100 Ed. 1, including Amendment 1. Fuel cells whose sole function is to charge a battery in the device are not permitted;</p>

<i>Items or articles</i>	<i>Location</i>		<i>Approval of the operator(s) is required</i>	<i>The pilot-in-command must be informed</i>	<i>Restrictions</i>
	<i>Checked baggage</i>	<i>Carry-on baggage</i>			
					i) fuel cells 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 j) in addition to the languages which may be required by the State of Origin for the markings specified above, English should be used.
<b>Gases in cylinders and cartridges</b>					
10) Oxygen or air cylinders required for medical use	Yes	Yes	Yes	Yes	a) no more than 5 kg gross mass per cylinder; b) cylinders, valves and regulators, where fitted, must be protected from damage which could cause inadvertent release of the contents; c) advance arrangements recommended; and d) the pilot-in-command must be informed of the number of oxygen or air cylinders loaded on board the aircraft and their loading location(s).
11) Cartridges of Division 2.2 worn for the operation of mechanical limbs	Yes	Yes	No	No	Spare cartridges of a similar size are also allowed, if required, to ensure an adequate supply for the duration of the journey.
12) Cartridge of hydrocarbon gas	Yes	Yes	No	No	a) must be contained in hair styling equipment; b) no more than one per person; c) the safety cover must be securely fitted over the heating element; and d) spare cartridges must not be carried.
13) Cartridges of Division 2.2 with no subsidiary risk	Yes	Yes	Yes	No	If fitted into a self-inflating personal safety device such as a life-jacket or vest: a) no more than one personal safety device per person; b) the personal safety device must be packed in such a manner that it cannot be accidentally activated; c) must be for inflation purposes; d) the device must be fitted with no more than two small cartridges; and e) no more than two spare cartridges.

Items or articles	Location		Approval of the operator(s) is required	The pilot-in-command must be informed	Restrictions
	Checked baggage	Carry-on baggage			
					<p>If <i>not</i> fitted into a self-inflating personal safety device such as a life-jacket or vest:</p> <p>a) no more than four small cartridges per person; and</p> <p>b) the water capacity of each cartridge must not exceed 50 mL.</p> <p><i>Note.— For carbon dioxide, a gas cartridge with a water capacity of 50 mL is equivalent to a 28 g cartridge.</i></p>
14) Cylinder of Division 2.2 without subsidiary risk contained in an avalanche rescue backpack	Yes	Yes	Yes	No	<p>a) no more than one per person;</p> <p>b) may contain a pyrotechnic trigger mechanism which must not contain more than 200 mg net of Division 1.4S;</p> <p>c) the backpack must be packed in such a manner that it cannot be accidentally activated; and</p> <p>d) the airbags within the backpack must be fitted with pressure relief valves.</p>
<b>Radioactive material</b>					
15) Radioisotopic cardiac pacemakers or other medical devices	n/a	Yes	No	No	Must be implanted into a person or fitted externally as the result of medical treatment.
<b>Mercury</b>					
16) Small medical or clinical thermometer which contains mercury	Yes	No	No	No	<p>a) no more than one per person; and</p> <p>b) must be in its protective case.</p>
<b>Miscellaneous dangerous goods</b>					
17) Non-radioactive medicinal articles (including aerosols), toiletry articles (including aerosols) and aerosols in Division 2.2 with no subsidiary risk	Yes	Yes	No	No	<p>a) no more than 0.5 kg or 0.5 L total net quantity per single article;</p> <p>b) release valves on aerosols must be protected by a cap or other suitable means to prevent inadvertent release of the contents;</p> <p>c) the release of gas must not cause extreme annoyance or discomfort to crew members so as to prevent the correct performance of assigned duties; and</p> <p>d) no more than 2 kg or 2 L total net quantity of all articles (e.g. four aerosol cans of 500 mL each) per person.</p>
18) Dry ice	Yes	Yes	Yes	No	<p>a) no more than 2.5 kg per person;</p> <p>b) used to pack perishables that are not subject to these Instructions;</p> <p>c) the package must permit the release of carbon dioxide gas; and</p>

<i>Items or articles</i>	<i>Location</i>		<i>Approval of the operator(s) is required</i>	<i>The pilot-in-command must be informed</i>	<i>Restrictions</i>
	<i>Checked baggage</i>	<i>Carry-on baggage</i>			
					d) when carried in checked baggage, each package must be marked: <ul style="list-style-type: none"> <li>i) "DRY ICE" or "CARBON DIOXIDE, SOLID"; and</li> <li>ii) the net weight of dry ice or an indication that the net weight is 2.5 kg or less.</li> </ul>
19) Cartridges in Division 1.4S (UN 0012 or UN 0014 only)	Yes	No	Yes	No	a) no more than 5 kg gross mass per person; <ul style="list-style-type: none"> <li>b) must be securely packaged;</li> <li>c) must not include ammunition with explosive or incendiary projectiles; and</li> <li>d) allowances for more than one person must not be combined into one or more packages.</li> </ul>
20) Permeation devices for calibrating air quality monitoring equipment	Yes	No	No	No	Must comply with Special Provision A41
21) Non-infectious specimens in flammable solutions	Yes	Yes	No	No	Must comply with Special Provision A180
22) Refrigerated liquid nitrogen contained in insulated packagings	Yes	Yes	No	No	Must comply with Special Provision A152
23) Security-type equipment, such as attaché cases, cash boxes, cash bags, etc., incorporating dangerous goods as part of this equipment, for example, lithium batteries or pyrotechnic material	Yes	No	Yes	No	Must comply with Special Provision A178

Insert new Table 8-2 as follows:

**Table 8-2. Provisions for instruments carried by OPCW and government agencies**

<i>Items or articles</i>	<i>Location</i>		<i>Approval of the operator(s) is required</i>	<i>The pilot-in-command must be informed</i>	<i>Restrictions</i>
	<i>Checked baggage</i>	<i>Carry-on baggage</i>			
1) Instruments containing radioactive material (i.e. chemical agent monitor (CAM) and/or rapid alarm and identification device monitor (RAID-M))	Yes	Yes	Yes	No	a) the instruments must not exceed the activity limits specified in Table 2-14 of these Instructions; b) must be securely packed and without lithium batteries; and c) must be carried by staff members of the Organization for the Prohibition of Chemical Weapons (OPCW) on official travel.
2) A mercurial barometer or mercurial thermometer	No	Yes	Yes	Yes	a) must be carried by a representative of a government weather bureau or similar official agency; and b) must be packed in a strong outer packaging, having a sealed inner liner or a bag of strong leakproof and puncture-resistant material impervious to mercury, which will prevent the escape of mercury from the package irrespective of its position.

— END —