



WORKING PAPER

DANGEROUS GOODS PANEL (DGP)

TWENTY-SIXTH MEETING

Montréal, 16 to 27 October 2017

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

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 is invited to consider the proposed amendment to Part 8 as shown in the appendix to this working paper.

1. INTRODUCTION

1.1 A working paper presented at the last Dangerous Goods Panel Working Group Meeting (DGP-WG/17-WP/35, see 3.2.8.7 of the DGP-WG/17 report) proposed to simplify the provisions of Part 8. It proposed to group entries according to their hazard and function in order to limit the number of specific entries. This allowed for the removal of redundant text that had been repeated in the existing provisions.

1.2 There was support for the approach taken in developing the proposed amendment. A number of suggestions for improvement were discussed. The majority of these suggestions are incorporated in this proposal.

1.3 The principle behind Part 8 is that dangerous goods not listed 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.

1.4 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 38.3 tests for lithium batteries is repeated 7 times in Table 8-1).

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

- Batteries;
- Battery powered mobility aids;
- Flame and fuel sources;
- Gases in cylinders and cartridges;
- Radioactive materials;
- Mercury; and
- Other dangerous goods.

1.6 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 personal use only.

1.7 The lithium battery entry includes any equipment (e.g., portable electronic devices, medical equipment, toys, power tools, etc.) that contains lithium batteries.

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 The column “The pilot-in-command must be informed” was removed as it applies to a limited number of entries. A restriction has been added to those entries stating that the pilot-in-command must be informed.

1.10 Three (3) 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 hazard, 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.

1.11 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 agencies. These entries are therefore removed from Table 8-1 as they are quite specific in use.

2. ACTION BY THE DGP

2.1 The DGP is invited to consider the proposed amendment to Part 8 as shown in the appendix to this working paper.

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 their person. Except as provided for in Table 8-1, 31), 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.~~

1.1.1 Passengers or crew are forbidden to carry dangerous goods either as or in carry-on baggage, checked baggage or on their person unless the dangerous goods are in compliance with all restrictions and conditions and are:

a) listed in Table 8-1; and

b) for personal use only.

~~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 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):~~

1.1.2 Except for the reporting provisions of 7:4.4 and 7:4.5, the provisions of these Instructions do not apply to the dangerous goods listed in Table 8-1 when those dangerous goods are:

a) carried by passengers or crew for personal use only;

b) contained in baggage that has been separated from its owner during transit (e.g. lost baggage or improperly routed baggage); or

c) contained within items of excess baggage sent as cargo as permitted by 1:1.1.5.1g).

1.1.3 An item or article that contains multiple dangerous goods must meet the restrictions and conditions of all applicable entries.

Note.— For instance, the restrictions and conditions for entries 1) and 14) of Table 8-1 apply to an avalanche backpack that contains lithium batteries and gas cartridges.

1.1.4 Dangerous goods in carry-on baggage that is placed in the cargo compartment must meet the restrictions for checked baggage. When baggage intended as carry-on is taken by the operator and placed into the cargo compartment for carriage, the operator must ensure that items which are only permitted in carry-on baggage have been removed.

1.1.3~~5~~ Any organization or enterprise other than an operator (such as a travel agent), involved in the air transport of

passengers, should provide passengers with information about the types of dangerous goods which they are forbidden to transport aboard an aircraft. This information should consist of, as a minimum, notices at those locations where there is an interface with the passengers.

1.1.4⁶ Where provision is made for the purchase of tickets via the Internet, information on the types of dangerous goods which a passenger is forbidden to transport aboard an aircraft should be provided in either text or pictorial form and should be such that ticket purchase cannot be completed until the passenger, or a person acting on their behalf, has indicated that they have understood the restrictions on dangerous goods in baggage.

1.1.7 The Organization for the Prohibition of Chemical Weapons (OPCW) and government agencies may carry instruments containing dangerous goods listed in Table 8-2 if all restrictions and conditions are met.

1.1.8 Except for the reporting provisions of 7:4.4 and 7:4.5, the provisions of these Instructions do not apply to the dangerous goods listed in Table 8-2 when those dangerous goods are:

- a) carried by staff members of the OPCW on official travel or government agencies;
- b) contained in baggage that has been separated from its owner during transit (e.g. lost baggage or improperly routed baggage); or
- c) contained within items of excess baggage sent as cargo as permitted by 1:1.1.5.1 g).

Note 1.— 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, lithium batteries, etc.;
- c) “strike anywhere” matches;
- d) lighter fuel and lighter refills;
- e) premixing burner lighter (see the Glossary of Terms in Attachment 2) without a means of protection against unintentional activation; and
- f) Battery-powered lighters powered by a lithium ion or lithium metal battery (e.g. laser plasma lighters, tesla coil lighters, flux lighters, arc lighters and double arc lighters) without a safety cap or means of protection against unintentional activation.

Note 2.— Exceptions found in these Instructions are not reproduced in Table 8-1. The following dangerous goods are not subject to these Instructions:

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

Note 3.— States may implement additional restrictions in the interests of aviation security.

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

Replace Table 8-1 with the following:

<i>Dangerous Goods</i>	<i>Location</i>		<i>Approval of the operator(s) is required</i>	<i>Restrictions</i>
	<i>Checked baggage</i>	<i>Carry-on baggage</i>		
Batteries				
1) Lithium batteries	Yes (except for h)	Yes	(see c) and d))	<p>a) each battery must be of a type which meets the requirements of each test in the UN <i>Manual of Tests and Criteria</i>, Part III, subsection 38.3;</p> <p>b) each battery must not exceed the following:</p> <ul style="list-style-type: none"> — for lithium metal batteries, a lithium content of 2 grams; or — for lithium ion batteries, a Watt-hour rating of 100 Wh; <p>c) each battery may exceed 100 Wh but not exceed 160 Wh Watt-hour rating for lithium ion with the approval of the operator;</p> <p>d) each battery 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;</p> <p>e) batteries contained in devices should be carried as carry-on baggage; however, if carried as checked baggage:</p> <ul style="list-style-type: none"> — measures must be taken to prevent unintentional activation and to protect the devices from damage; and — the devices must be completely switched off (not in sleep or hibernation mode); <p>f) batteries contained in devices must not be recharged on board the aircraft without the approval of the operator;</p> <p>g) batteries must be removed from devices capable of generating extreme heat which could cause a fire if activated unless they are fitted with a safety cap or a means of protection against unintentional activation;</p> <p>h) spare batteries not contained in a device (including power banks),</p> <ul style="list-style-type: none"> — must be carried as carry-on baggage — 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); — must not be recharged on board the aircraft; and — must not be electrically connected or providing power to an external device; and <p>i) no more than two spare batteries exceeding a lithium content of 2 grams for lithium metal or a Watt-hour rating exceeding 100 Wh for lithium ion may be carried per person.</p>

	Location		Approval of the operator(s) is required	Restrictions
	Checked baggage	Carry-on baggage		
<i>Dangerous Goods</i>				
2) Non-spillable batteries	Yes	Yes	No	<ul style="list-style-type: none"> a) must meet the requirements of Special Provision A67; b) each battery must not exceed a voltage of 12 volts and a Watt-hour rating of 100 Wh; c) each battery must be protected from short circuit by the effective insulation of exposed terminals; d) no more than two spare batteries per person may be carried; and e) if contained in equipment, the equipment must be either protected from unintentional activation, or each 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	<ul style="list-style-type: none"> a) if powered by lithium batteries, each battery must comply with restrictions of 1) a), b), e); and b) the devices and/or batteries must not be recharged on board the aircraft.
4) Battery-powered mobility aids (e.g. wheelchairs)	Discussed under DGP/26-WP/36			
Flame and fuel sources				
5) Cigarette lighter Small packet of safety matches	No	Yes	No	<ul style="list-style-type: none"> a) no more than one per person; b) must be carried on the person; and c) must not contain unabsorbed liquid fuel (other than liquefied gas).
6) Alcoholic beverages containing more than 24 per cent but not more than 70 per cent alcohol by volume	Yes	Yes	No	<ul style="list-style-type: none"> a) must be in retail packagings; and b) no more than 5 L total net quantity per person. <p style="text-align: center;"><i>Note.— Alcoholic beverages containing not more than 24 per cent alcohol by volume are not subject to any restrictions.</i></p>
7) Internal combustion engines or fuel cell engines	Yes	No	No	Measures must be taken to nullify the hazard. Refer to Special Provision A70 for more information.
8) Fuel cells	No	Yes	No	<ul style="list-style-type: none"> a) fuel cell cartridges may only contain flammable liquids, corrosive substances, liquefied flammable gas, water reactive substances or hydrogen in metal hydride; b) refuelling of fuel cells on board an aircraft is not permitted except that the installation of a spare cartridge is allowed; c) the maximum quantity of fuel in any fuel cell or fuel cell cartridge must not exceed: <ul style="list-style-type: none"> — for liquids 200 mL; — for solids 200 grams; — for liquefied gases, 120 mL for non-metallic fuel cell cartridges or 200 mL for metal fuel cell or fuel cell cartridges; and — for hydrogen in metal hydride, the fuel cell or fuel cell cartridges must have a water capacity of 120 mL or less;
Spare fuel cell cartridges	Yes	Yes	No	

Dangerous Goods	Location		Approval of the operator(s) is required	Restrictions
	Checked baggage	Carry-on baggage		
				<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> <p>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</p> <p>j) in addition to the languages which may be required by the State of Origin for the markings specified above, English should be used.</p>

Gases in cylinders and cartridges

9) Cylinders of oxygen or air required for medical use	Yes	Yes	Yes	<p>a) no more than 5 kg gross mass per cylinder;</p> <p>b) cylinders, valves and regulators, where fitted, must be protected from damage which could cause inadvertent release of the contents;</p> <p>c) advance arrangements recommended; and</p> <p>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).</p>
10) Cartridges of Division 2.2 worn for the operation of mechanical limbs	Yes	Yes	No	Spare cartridges of a similar size are also allowed, if required, to ensure an adequate supply for the duration of the journey.
11) Cartridge of hydrocarbon gas	Yes	Yes	No	<p>a) must be contained in hair styling equipment;</p> <p>b) no more than one per person;</p> <p>c) the safety cover must be securely fitted over the heating element; and</p> <p>d) spare cartridges must not be carried.</p>
12) Cartridges of Division 2.2 with no subsidiary hazard for other than self-inflating personal safety device				<p>a) no more than four 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>
13) Cartridges of Division 2.2 with no subsidiary hazard fitted into a self-inflating personal safety device such as a life-jacket or vest	Yes	Yes	Yes	<p>a) no more than one personal safety device per person;</p> <p>b) the personal safety device must be packed in such a manner that it cannot be accidentally activated;</p> <p>c) must be for inflation purposes;</p>

Dangerous Goods	Location		Approval of the operator(s) is required	Restrictions
	Checked baggage	Carry-on baggage		
				<ul style="list-style-type: none"> d) no more than two cartridges are fitted into the device; and a) no more than two spare cartridges.
14) Cartridges and cylinders of Division 2.2 with no subsidiary hazard contained in an avalanche rescue backpack				<ul style="list-style-type: none"> a) no more than one avalanche rescue backpack per person; b) the backpack must be packed in such a manner that it cannot be accidentally activated; c) may contain a pyrotechnic trigger mechanism which must not contain more than 200 mg net of Division 1.4S; and d) the airbags within the backpack must be fitted with pressure relief valves.
Radioactive material				
15) Radioisotopic cardiac pacemakers or other medical devices	n/a	Yes	No	Must be implanted into a person or fitted externally as the result of medical treatment.
Mercury				
16) Small medical or clinical thermometer which contains mercury	Yes	No	No	<ul style="list-style-type: none"> a) no more than one per person; and b) must be in its protective case.
Other dangerous goods				
17) Non-radioactive medicinal articles (including aerosols), toiletry articles (including aerosols) and aerosols in Division 2.2 with no subsidiary hazard	Yes	Yes	No	<ul style="list-style-type: none"> a) no more than 0.5 kg or 0.5 L total net quantity per single article; b) release valves on aerosols must be protected by a cap or other suitable means to prevent inadvertent release of the contents; 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 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.
18) Dry ice	Yes	Yes	Yes	<ul style="list-style-type: none"> a) no more than 2.5 kg per person; b) used to pack perishables that are not subject to these Instructions; c) the package must permit the release of carbon dioxide gas; and d) when carried as checked baggage, each package must be marked: <ul style="list-style-type: none"> i) "DRY ICE" or "CARBON DIOXIDE, SOLID"; and ii) the net weight of dry ice or an indication that the net weight is 2.5 kg or less.
19) Cartridges in Division 1.4S (UN 0012 or UN 0014 only)	Yes	No	Yes	<ul style="list-style-type: none"> a) no more than 5 kg gross mass per person; b) must be securely packaged; c) must not include ammunition with explosive or incendiary projectiles; and d) allowances for more than one person must not be combined into one or more packages.

<i>Dangerous Goods</i>	<i>Location</i>		<i>Approval of the operator(s) is required</i>	<i>Restrictions</i>
	<i>Checked baggage</i>	<i>Carry-on baggage</i>		
20) Permeation devices	Yes	No	No	Instructions on how to package permeation devices for calibrating air quality monitoring equipment are found in Special Provision A41.
21) Non-infectious specimens in flammable solutions	Yes	Yes	No	Instructions on how to package and mark specimens are found in Special Provision A180.
22) Refrigerated liquid nitrogen	Yes	Yes	No	Must be contained in insulated packagings (dry shippers) that would not allow the build-up of pressure and be fully absorbed in a porous material so that there is no free liquid that could be released from the packaging. Refer to Special Provision A152 for more information.
23) Dangerous goods incorporated in security-type equipment, such as attaché cases, cash boxes, cash bags, etc.	Yes	No	Yes	The security-type equipment must be equipped with an effective means of preventing accidental activation and the dangerous goods incorporated in the equipment must meet the conditions of Special Provision A178.

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Insert new Table 8-2 as follows:

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

<i>Dangerous Goods</i>	<i>Location</i>		<i>Approval of the operator(s) is required</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	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	a) must be carried by a representative of a government weather bureau or similar official agency; a) 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; and b) the pilot-in-command must be informed of the barometer or thermometer.

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