



**WORKING PAPER**

**DANGEROUS GOODS PANEL (DGP)**

**TWENTY-THIRD MEETING**

**Montréal, 11 to 21 October 2011**

**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 2013-2014 Edition**

**DRAFT AMENDMENTS OF THE TECHNICAL INSTRUCTIONS — PART 8**

(Presented by the Secretary)

**SUMMARY**

This working paper contains draft amendments to Part 8 of the Technical to reflect amendments agreed by DGP-WG/10 (Abu Dhabi, United Arab Emirates, 7 to 11 November 2010) and DGP-WG/11 (Atlantic City, United States, 4 to 8 April 2011).

The DGP is invited to agree to the draft amendments in this working paper.

**Part 8**

**PROVISIONS CONCERNING  
PASSENGERS AND CREW**

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

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

*Editorial Note.— The passenger provisions have been reformatted in the form of a table as agreed at DGP-WG/11 (see DGP/23-WP/3, paragraph 3.2.54).*

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			
<b>Medical necessities</b>						
a) Small gaseous oxygen or air cylinders required for medical use	Yes	Yes	Yes	Yes	Yes	1) no more than 5 kg gross mass per cylinder; 2) cylinders, valves and regulators, where fitted, must be protected from damage, which could cause inadvertent release of the contents; and 3) 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).
Devices containing liquid oxygen	No	No	No	n/a	n/a	Devices containing liquid oxygen are forbidden in carry-on baggage, checked baggage or on the person.
b) Cylinders of a gas of Division 2.2 worn for the operation of mechanical limbs	Yes	Yes	Yes	No	No	Spare cylinders of a similar size are also allowed if required to ensure an adequate supply for the duration of the journey.
c) Non-radioactive medicinal articles (including aerosols)	Yes	Yes	Yes	No	No	1) no more than 0.5 kg or 0.5 L total net quantity per single article; 2) release valves on aerosols must be protected by a cap or other suitable means to prevent inadvertent release of the contents; and 3) no more than 2 kg or 2 L total net quantity of all articles mentioned in c), j) and m) (e.g. four aerosol cans of 500 mL each) per person.
d) Radioisotopic cardiac pacemakers or other devices, including those powered by lithium batteries implanted into a person	n/a	n/a	Yes	No	No	Must be implanted into a person as the result of medical treatment.
Radio-pharmaceuticals contained within the body of a person	n/a	n/a	Yes	No	No	Must be as the result of medical treatment.
e) Battery-powered wheelchairs or other similar mobility aids with non-spillable batteries	Yes	No	No	Yes	No	1) for use by passengers whose mobility is restricted by either a disability, their health or age, or a temporary mobility problem (e.g. broken leg); 2) must comply with Special Provision A67 or the vibration and pressure differential tests of Packing Instruction 872;

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			
						<ol style="list-style-type: none"> <li>3) the battery terminals must be protected from short circuits (e.g. by being enclosed within a battery container);</li> <li>4) the battery must be securely attached to the wheelchair or mobility aid;</li> <li>5) the operator(s) must ensure that: <ul style="list-style-type: none"> <li>— wheelchairs or other battery-powered mobility aids are carried in such a manner so as to prevent unintentional activation; and</li> <li>— they are protected from being damaged by the movement of baggage, mail, stores or other cargo;</li> </ul> </li> <li>6) it is recommended that passengers make advance arrangements with each operator.</li> </ol>
f) Battery-powered wheelchairs or other similar mobility aids with spillable batteries	Yes	No	No	Yes	Yes	<ol style="list-style-type: none"> <li>1) for use by passengers whose mobility is restricted by either a disability, their health or age, or a temporary mobility problem (e.g. broken leg);</li> <li>2) the wheelchair or mobility aid can be loaded, stowed, secured and unloaded always in an upright position and the battery terminals are protected from short circuits (e.g. by being enclosed within a battery container) and the battery is securely attached to the wheelchair or mobility aid;</li> <li>3) the operator(s) must ensure that wheelchairs or other battery-powered mobility aids are carried in such a manner so as to prevent unintentional activation and that they are protected from being damaged by the movement of baggage, mail, stores or other cargo;</li> <li>4) if the wheelchair or mobility aid cannot be loaded, stowed, secured and unloaded always in an upright position, the battery must be removed and the wheelchair or mobility aid may then be carried as checked baggage without restriction;</li> <li>5) the removed battery must be carried in strong, rigid packagings as follows: <ul style="list-style-type: none"> <li>— the packagings must be leaktight, impervious to battery fluid and be protected against upset by securing them to pallets or by securing them in cargo compartments using appropriate means of securement (other than by bracing with freight or baggage) such as by use of restraining straps, brackets or holders;</li> </ul> </li> </ol>

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			
						<ul style="list-style-type: none"> <li>— batteries must be protected against short circuits, secured upright in these packagings and surrounded by compatible absorbent material sufficient to absorb their total liquid contents;</li> </ul> <p style="text-align: center;">DGP/23-WP/2, paragraph 3.2.29:</p> <ul style="list-style-type: none"> <li>— these packagings must be marked “Battery, wet, with wheelchair” or “Battery, wet, with mobility aid” and be labelled with a “Corrosive” label (Figure 5-22) and with a package orientation labels (Figure 5-26) <u>as required by 5.3.3</u>;</li> </ul> <p>6) it is recommended that passengers make advance arrangements with each operator; also unless batteries are nonspillable they should be fitted, where feasible, with spill-resistant vent caps.</p>

DGP/23-WP/3, paragraph 3.2.51:

g) Lithium-ion battery-powered wheelchairs or other similar mobility aids	Yes	No	No	Yes	Yes	<ol style="list-style-type: none"> <li>1) for use by passengers whose mobility is restricted by either a disability, their health or age, or a temporary mobility problem (e.g. broken leg);</li> <li>2) the batteries must be of a type which meets the requirements of each test in the UN <i>Manual of Tests and Criteria</i>, Part III, section 38.3;</li> <li>3) battery terminals must be protected from short circuits (e.g. by being enclosed within a battery container) and securely attached to the mobility aid;</li> <li>4) the operator(s) must ensure that such mobility aids are carried in a manner so as to prevent unintentional activation and that they are protected from being damaged by the movement of baggage, mail, stores or other cargo; and</li> <li>5) it is recommended that passengers make advance arrangements with each operator.</li> </ol>
h) Portable medical electronic devices (Automated External Defibrillators (AED), Nebulizer, Continuous Positive Airway Pressure (CPAP), etc.) containing lithium metal or lithium ion cells or batteries	No	Yes	Yes	Yes	No	<ol style="list-style-type: none"> <li>1) carried by passengers for medical use;</li> <li>2) no more than two spare batteries may be carried. 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); and</li> <li>3) each installed or spare battery: <ul style="list-style-type: none"> <li>— must be of a type which meets the</li> </ul> </li> </ol>

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			
						requirements of each test in the UN <i>Manual of Tests and Criteria</i> , Part III, section 38.3; and — must not exceed the following: — for lithium metal batteries, a lithium content of not more than 8 grams; or — for lithium ion batteries, a watt-hour rating of not more than 160 Wh.
i) Small medical or clinical thermometer which contains mercury	Yes	Yes	Yes	No	No	1) no more than one per person; 2) must be for personal use; and 3) must be in its protective case.

**Articles used in dressing or grooming**

j) Toiletry articles (including aerosols)	Yes	Yes	Yes	No	No	1) the term “toiletry articles (including aerosols)” is intended to include such items as hair sprays, perfumes and colognes; 2) no more than 0.5 kg or 0.5 L total net quantity per single article; 3) release valves on aerosols must be protected by a cap or other suitable means to prevent inadvertent release of the contents; and 4) no more than 2 kg or 2 L total net quantity of all articles mentioned in c), j) and m) (e.g. four aerosol cans of 500 mL each) per person.
k) Hair curlers containing hydrocarbon gas	Yes	Yes	Yes	No	No	1) no more than one per person; 2) the safety cover must be securely fitted over the heating element; and 3) gas refills for such curlers must not be carried.

**Consumer articles**

l) Alcoholic beverages containing more than 24 per cent but not more than 70 per cent alcohol by volume	Yes	Yes	Yes	No	No	1) must be in retail packagings; 2) no more than 5 L per individual receptacle; and 3) no more than 5 L total net quantity per person for such beverages.  <i>Note. — Alcoholic beverages containing not more than 24 per cent alcohol by volume are not subject to any restrictions.</i>
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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			
m) Aerosols in Division 2.2, with no subsidiary risk, for sporting or home use	Yes	No	No	No	No	<ol style="list-style-type: none"> <li>1) no more than 0.5 kg or 0.5 L total net quantity per single article;</li> <li>2) release valves on aerosols must be protected by a cap or other suitable means to prevent inadvertent release of the contents; and</li> <li>3) no more than 2 kg or 2 L total net quantity of all articles mentioned in c), j) and m) (e.g. four aerosol cans of 500 mL each) per person.</li> </ol>
n) Securely packaged cartridges in Division 1.4S (UN 0012 or UN 0014 only);	Yes	No	No	Yes	No	<ol style="list-style-type: none"> <li>1) no more than 5 kg gross mass per person for that person's own use;</li> <li>2) must not include ammunition with explosive or incendiary projectiles; and</li> <li>3) allowances for more than one person must not be combined into one or more packages.</li> </ol>
o) Small packet of safety matches	No	No	Yes	No	No	<ol style="list-style-type: none"> <li>1) no more than one per person; and</li> <li>2) intended for use by an individual.</li> </ol>
“Strike anywhere” matches	No	No	No	n/a	n/a	Forbidden
Small cigarette lighter	No	No	Yes	No	No	<ol style="list-style-type: none"> <li>1) no more than one per person;</li> <li>2) intended for use by an individual; and</li> <li>3) does not contain unabsorbed liquid fuel (other than liquefied gas).</li> </ol>
Lighter fuel and lighter refills	No	No	No	n/a	n/a	Forbidden
p) Battery-powered equipment capable of generating extreme heat, which could cause a fire if activated (e.g. underwater high intensity lamps)	Yes	Yes	No	Yes	No	<ol style="list-style-type: none"> <li>1) the heat producing component or the battery is packed separately so as to prevent activation during transport; and</li> <li>2) any battery which has been removed must be protected against short circuit.</li> </ol>
q) Avalanche rescue backpack	Yes	Yes	No	Yes	No	<ol style="list-style-type: none"> <li>1) no more than one per person;</li> <li>2) the pyrotechnic trigger mechanism must not contain more than 200 mg net of Division 1.4S;</li> <li>3) the cylinder of compressed gas of Division 2.2 must not exceed 250 mL;</li> <li>4) the backpack must be packed in such a manner that it cannot be accidentally activated; and</li> <li>5) the airbags within the backpack must be fitted with pressure relief valves.</li> </ol>

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			
r) Small cartridges fitted into a self-inflating life-jacket	Yes	Yes	Yes	Yes	No	1) limited to carbon dioxide or another suitable gas in Division 2.2; 2) must be for inflation purposes; 3) no more than two small cylinders of carbon dioxide or another suitable gas in Division 2.2 fitted in the life-jacket, per person; and 4) no more than two spare cartridges.

DGP/23-WP/3, paragraph 3.2.48:

<u>Other devices</u>	<u>Yes</u>	<u>Yes</u>	<u>Yes</u>	<u>Yes</u>	<u>No</u>	1) <u>no more than four small cylinders of carbon dioxide or other suitable gas in Division 2.2, per person; and</u> 2) <u>the water capacity of each cylinder must not exceed 50 mL.</u>  <i>Note.— For carbon dioxide, a gas cylinder with a water capacity of 50 mL is equivalent to a 28 g cartridge.</i>
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s) Portable electronic devices (watches, calculating machines, cameras, cellular phones, laptop computers, camcorders, etc.)

Portable electronic devices containing lithium or lithium ion cells or batteries	Yes	Yes	Yes	No	No	1) carried by passengers or crew for personal use; 2) should be carried as carry-on baggage; <del>and</del> 3) each 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 rating of not more than 100 Wh; <del>and</del> DGP/23-WP/3, paragraph 3.2.53: 4) <u>batteries and cells must be of a type which meets the requirements of each test in the UN Manual of Tests and Criteria, Part III, section 38.3.</u>
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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			
Spare batteries for portable electronic devices containing lithium or lithium ion cells or batteries	No	Yes	Yes	No	No	1) carried by passengers or crew for personal use; 2) 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); 3) each 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 rating of not more than 100 Wh; <u>and</u> DGP/23-WP/3, paragraph 3.2.53: 4) <u>batteries and cells must be of a type which meets the requirements of each test in the UN Manual of Tests and Criteria, Part III, section 38.3.</u>
Portable electronic devices containing lithium ion batteries exceeding a watt-hour rating of 100 Wh but not exceeding 160 Wh	Yes	Yes	Yes	Yes	No	1) carried by passengers or crew for personal use; 2) should be carried as carry-on baggage; and DGP/23-WP/3, paragraph 3.2.53: 3) <u>batteries and cells must be of a type which meets the requirements of each test in the UN Manual of Tests and Criteria, Part III, section 38.3.</u>
Spare batteries for portable electronic devices containing lithium ion batteries exceeding a watt-hour rating of 100 Wh but not exceeding 160 Wh	No	Yes	Yes	Yes	No	1) carried by passengers or crew for personal use; 2) no more than two individually protected spare batteries per person; 3) 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 DGP/23-WP/3, paragraph 3.2.53: 4) <u>batteries and cells must be of a type which meets the requirements of each test in the UN Manual of Tests and Criteria, Part III, section 38.3.</u>

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			
t) Fuel cells used to power portable electronic devices (for example cameras, cellular phones, laptop computers and camcorders)	No	Yes	Yes	No	No	1) fuel cell cartridges may only contain flammable liquids, corrosive substances, liquefied flammable gas, water reactive substances or hydrogen in metal hydride; 2) refuelling of fuel cells on board an aircraft is not permitted except that the installation of a spare cartridge is allowed;
DGP/23-WP/3, paragraph 3.2.49:						
Spare fuel cell cartridges containing flammable liquids, corrosive substances, liquefied flammable gas or hydrogen in metal hydride	Yes	Yes	Yes	No	No	3) the maximum quantity of fuel in any fuel cell or fuel cell cartridge must not exceed: <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>
Spare fuel cell cartridges containing water reactive substances	No	Yes	Yes	No	No	DGP/23-WP/3, paragraph 3.2.24: 4) each fuel cell and each fuel cell cartridge must conform to IEC PAS 62282-6-1 [62282-6-100] Ed. 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; 5) fuel cell cartridges containing hydrogen in metal hydride must comply with the requirements in Special Provision A162; 6) no more than two spare fuel cell cartridges may be carried by a passenger; 7) fuel cell containing fuel are permitted in carry-on baggage only; DGP/23-WP/3, paragraph 3.2.24: 8) interaction between fuel cells and integrated batteries in a device must conform to IEC PAS 62282-6-1 [62282-6-100] Ed. 1. Fuel cell whose sole function is to charge a battery in the device are not permitted;

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			
						<p>9) 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>10) in addition to the languages which may be required by the State of Origin for the markings specified above, English should be used.</p>
u) Dry Ice	Yes	Yes	No	Yes	No	<p>1) no more than 2.5 kg per person;</p> <p>2) used to pack perishables that are not subject to these Instructions;</p> <p>3) the package must permit the release of carbon dioxide gas; and</p> <p>4) when carried in checked baggage, each package must be marked:</p> <ul style="list-style-type: none"> <li>— "DRY ICE" or "CARBON DIOXIDE, SOLID"; and</li> <li>— the net weight of dry ice or an indication that the net weight is 2.5 kg or less.</li> </ul>
v) A mercurial barometer or mercurial thermometer	No	Yes	No	Yes	Yes	<p>1) must be carried by a representative of a government weather bureau or similar official agency; and</p> <p>2) 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.</p>
w) Instruments containing radioactive material (i.e. chemical agent monitor (CAM) and/or rapid alarm and identification device monitor (RAID-M))	Yes	Yes	No	Yes	No	<p>1) the instruments must not exceed the activity limits specified in Table 2-15 of these Instructions;</p> <p>2) must be securely packed and without lithium batteries; and</p> <p>3) must be carried by staff members of the Organization for the Prohibition of Chemical Weapons (OPCW) on official travel.</p>
x) Energy efficient light bulbs	Yes	Yes	Yes	No	No	<p>1) when in retail packaging; and</p> <p>2) intended for personal or home use.</p>

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			
<b>Security-type equipment</b>						
y) 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	No	Yes	No	<ol style="list-style-type: none"> <li>1) the equipment must be equipped with an effective means of preventing accidental activation;</li> <li>2) if the equipment contains an explosive or pyrotechnic substance or an explosive article, this article or substance must be excluded from Class 1 by the appropriate national authority of the State of Manufacture in compliance with Part 2;1.5.2.1;</li> <li>3) if the equipment contains lithium cells or batteries, these cells or batteries must comply with the following restrictions: <ul style="list-style-type: none"> <li>— for a lithium metal cell, the lithium content is not more than 1 g;</li> <li>— for a lithium metal <del>or lithium alloy</del> battery, the aggregate lithium content is not more than 2 g;</li> <li>— for lithium ion cells, the Watt-hour rating (see Attachment 2) is not more than 20 Wh;</li> <li>— for lithium ion batteries, the Watt-hour rating is not more than 100 Wh;</li> <li>— each cell or battery is of the type proven to meet the requirements of each test in the UN <i>Manual of Tests and Criteria</i>, Part III, section 38.3;</li> </ul> </li> <li>4) if the equipment contains gases to expel dye or ink, <ul style="list-style-type: none"> <li>— only gas cartridges and receptacles, small, containing gas with a capacity not exceeding 50 mL, containing no constituents subject to these Instructions other than a Division 2.2 gas, are allowed;</li> <li>— 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</li> <li>— In case of accidental activation, all hazardous effects must be confined within the equipment and must not produce extreme noise; and</li> </ul> </li> <li>5) security type equipment that is defective or that has been damaged is forbidden for transport.</li> </ol>

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