



WORKING PAPER

**DANGEROUS GOODS PANEL (DGP)
MEETING OF THE WORKING GROUP OF THE WHOLE**

Montréal, 15 to 19 April 2013

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 2015-2016 Edition

2.3 : Part 3 — Dangerous Goods List, Special Provisions and Limited and Excepted Quantities

DANGEROUS GOODS LIST — ID 8000 CONSUMER COMMODITY

(Presented by Adrian Tušek)

SUMMARY

This paper proposes that recent changes to provisions for dangerous goods in limited quantities requires the DGP to consider the on-going need for the entry in the dangerous goods list for (ID 8000) **Consumer commodity**. As a minimum, the associated Packing Instruction Y963 requires amendment to align it with the provisions for dangerous goods in limited quantities.

Action by the DGP-WG is in paragraph 2.

1. INTRODUCTION

1.1 The dangerous goods list (Table 3-1) contains an entry unique to air transport being **Consumer commodity**, ID 8000.

1.2 Consumer commodity has Special Provision A112 and Packing Instruction Y963 assigned to it.

1.3 In the Technical Instructions, Attachment 2 — Glossary of terms, the following explanation is given for consumer commodity:

CONSUMER COMMODITY. A material which is packed and distributed in a form intended or suitable for retail sales for the purposes of personal care or household use.

1.4 The amount permitted per package on passenger aircraft or on cargo aircraft is 30 kg G.

1.5 Special Provision A112 limits consumer commodities to the following:

A112 Consumer commodities may only include substances of Class 2 (non-toxic aerosols only), Class 3, Packing Group II or III, Division 6.1 (Packing Group III only), UN 3077, UN 3082 and UN 3175, provided such substances do not have a subsidiary risk. Dangerous goods that are forbidden for transport aboard passenger aircraft must not be transported as consumer commodities.

1.6 Packing instructions shown prefixed with the letter Y are for dangerous goods in limited quantities. In the case of Consumer commodity, the Packing Instruction Y963 applies.

1.7 Packing Instruction Y963 requires the marking of packages containing Consumer commodity with the limited quantities mark (Figure 3-1) found in Part 3;4 of the Technical Instructions.

1.8 It is currently assumed and taught that these packages when subject to multi modal transport would comply with the requirements of the UN Model Regulations provisions for dangerous goods in limited quantities.

1.9 Attached as Appendix A to this working paper is a spread sheet listing the dangerous goods permitted as a Consumer commodity compared to the same dangerous goods when shipped as limited quantities. The inner package and outer package limit, the markings and labels, the relevant ERG code, etc are provided.

1.10 Some outer package limits of 30 kg G permitted for Consumer commodity far exceed the outer package limit for the same item as a limited quantity. There are highlighted in 'yellow' on the spread sheet.

1.11 Hazard label requirements for Consumer commodity show an immediate difference from those sent by air compared to dangerous goods prepared and packaged in accordance with the limited quantity provisions.

1.12 The ERG Code for all Consumer commodity packages is 9L. However, the ERG codes for the same dangerous goods when shipped as limited quantities is quite different for items other than UN 3077 and UN 3082 (See ERG codes in Appendix A for comparison (shown in red and blue)).

1.13 The hazard label and ERG differences remove the ability for flight crew and loading staff to have the same safety information as they would have if the items were prepared in accordance with the limited quantity provisions.

1.14 Attached as Appendix B to this working paper is a spread sheet setting out a comparison of the requirements of Packing Instruction Y963 against related requirements for dangerous goods in limited quantities and some other related text locations in the Technical Instructions. A column containing "Comments" is provided to highlight areas where items prepared as consumer commodity are not subject to the same requirements as dangerous goods in limited quantities.

1.15 This working paper shows a number of anomalies whereby the current requirements for Consumer commodity fail to meet the same safety standards as applied to dangerous goods in limited quantities.

1.16 The Technical Instructions Part 3;4.3 contains quantity limitations for the dangerous goods in limited quantities including circumstances when different dangerous goods are contained in one outer package. An equivalent criteria is not applied to Consumer commodity.

1.17 The 17th Edition of the UN Model Regulations at 3.4.8 requires that:

Packages containing dangerous goods consigned for air transport in conformity with the provisions of Part 3, Chapter 4 of the ICAO Technical Instructions for the Safe Transport of dangerous goods by Air shall bear the limited quantity mark. In circumstances where a package containing Consumer commodity does not comply with 3.4 of the Technical Instructions then it is not lawful to apply the limited quantity mark in Figure 3-1.

2. ACTION BY THE DGP-WG

2.1 The DGP is invited to consider deleting the proper shipping name **Consumer commodity**, ID 8000.

2.2 Alternatively, the DGP is invited to consider establishing a working group to review the differences with a view to aligning fully with the provisions relating to dangerous goods in limited quantities.

APPENDIX A

**A SPREAD SHEET LISTING THE DANGEROUS GOODS PERMITTED AS A CONSUMER
COMMODITY COMPARED TO THE SAME DANGEROUS GOODS WHEN SHIPPED AS
LIMITED QUANTITIES**

Type of Dangerous Goods	UN Number	Class or Sub Division	Sub risk	Packing Group	Inner Pkg ID 8000	Outer Pkg ID 8000	Inner Pkg Ltd Qty	Outer Pkg Ltd Qty	Ltd Qty Special Provision	Ltd Qty Packing Instruction	ID 8000 - Required on Package			ERG	Limited Quantity - Required on Package			ERG	UN17 Inner Pkg Ltd Qty	UN17 Outer Pkg Ltd Qty	
Aerosols, flammable	1950	2.1			120 mL non-metal 500 mL metal	30 kg G	500 mL non-metal 1000 mL metal	30 kg G	A145 A167	Y203				9L				10L	1 L	30 kg G	
Aerosols, non-flammable	1950	2.2			120 mL non-metal 800 mL metal	30 kg G	500 mL non-metal 1000 mL metal	30 kg G	A98 A145 A167	Y203				9L				2L	1 L	30 kg G	
Aerosols, non-flammable [containing biological products or a medical preparation which will be deteriorated by a heat test-Packing Instruction Y204]	1950	2.2			120 mL	30 kg G	575 mL	30 kg G	A98 A145 A167	Y204				9L				2L	1 L	30 kg G	
Flammable liquids		3		II	500 mL	30 kg G	500 mL	1 L	A3	Y341				9L				3H	1 L	30 kg G	
		3		III	500 mL	30 kg G	2.5 L glass 5.0 L plastics 5.0 L metal	10 L	A3	Y344				9L				3L	5 L	30 kg G	
Toxic substances		6.1		III	500 mL 500 g	30 kg G	500 mL 1 kg	2 L 10 kg	A3 A5	Y642 Y645				9L				6A 6L	5 L 5 kg	30 kg G	
Environmentally hazardous substance, solid, n.o.s.*	3077	9		III	500 g	30 kg G	5 kg	30 kg G	A97 A158 A179	Y956				9L				9L	5 kg	30 kg G	
Environmentally hazardous substance, liquid, n.o.s.*	3082	9		III	500 mL	30 kg G	5 L	30 kg G	A97 A158	Y964				9L				9L	5 L	30 kg G	
Solids containing flammable liquid, n.o.s.*	3175	4.1		II	500 g	30 kg G	500 g	5 kg	A46	Y441				9L				3L	1 kg	30 kg G	

APPENDIX B

**A SPREAD SHEET SETTING OUT A COMPARISON OF THE REQUIREMENTS OF
PACKING INSTRUCTION Y963 AGAINST RELATED REQUIREMENTS FOR DANGEROUS
GOODS IN LIMITED QUANTITIES AND SOME OTHER RELATED TEXT LOCATIONS IN
THE TECHNICAL INSTRUCTIONS**

	<p align="center">ID8000 Packing Instruction Y963</p>	<p align="center">Limited Quantity</p>	<p align="center">Technical Instructions relevant reference</p>	<p align="center">Comment</p>
	<p>Except as otherwise provided below, dangerous goods packed in accordance with this packing instruction do not need to comply with 4;1 or Part 6 of these Instructions; they must, however, comply with all other applicable requirements.</p>	<p>3;4.2.1 The general packing requirements of 4;1.1 applicable to passenger aircraft must be met except that the requirements of 4;1.1.2, 4;1.1.9 c), 4;1.1.9 e), 4;1.1.16, 4;1.1.18 and 4;1.1.20 do not apply.</p>		<p>ID8000 does not need to comply with 4;1 whereas Limited Quantity must meet certain provisions of 4;1.1</p>
		<p>3;4.2.5 Inner packagings must meet the requirements of 6;3.2. Outer packagings must be so designed that they meet the construction requirements in 6;3.1 which apply to the type of outer packaging to be used for the article or substance.</p>	<p>6;3.2 6;3.1</p>	<p>Not currently applicable to ID8000</p>
<p>a)</p>	<p>Inner packagings that are breakable (such as earthenware, glass or brittle plastic) must be packed to prevent breakage and leakage under conditions normally incident to transport.</p>		<p>4;1.1.10</p>	<p>ID8000 does not meet all requirements of 4;1.1.10 such as cushioning material</p>
<p>b)</p>	<p>These completed packagings must be capable of withstanding a 1.2 m drop on solid concrete in the position most likely to cause damage.</p>	<p>3;4.4.1 Each package offered for transport must be capable of withstanding a 1.2 m drop test on to a rigid, non-resilient, flat and horizontal surface, in the position most likely to cause damage. The criteria for passing the test is that the outer packaging must not exhibit any damage liable to affect safety during transport and there must be no leakage from the inner packaging(s).</p>		<p>For ID8000 there is no criteria specified for passing this test</p>

	<p style="text-align: center;">ID8000 Packing Instruction Y963</p>	<p style="text-align: center;">Limited Quantity</p>	<p style="text-align: center;">Technical Instructions relevant reference</p>	<p style="text-align: center;">Comment</p>
c)	<p>Each package offered for transport must be capable of withstanding, without breakage or leakage of any inner packaging and without significant reduction of effectiveness, a force applied to the top surface for a duration of 24 hours equivalent to the total weight of identical packages if stacked to a height of 3 metres (including the test sample)</p>	<p>3;4.4.2 Each package offered for transport must be capable of withstanding, without breakage or leakage of any inner packaging and without significant reduction of effectiveness, a force applied to the top surface for a duration of 24 hours equivalent to the total weight of identical packages if stacked to a height of 3 m (including the test sample)</p>		same
c)	<p>When filling receptacles for liquids, sufficient ullage (outage) must be left to ensure that neither leakage nor permanent distortion of the receptacle will occur as a result of an expansion of the liquid caused by temperatures likely to prevail during transport.</p>		4;1.1.5	
c)	<p>Unless specific requirements are prescribed in national rules or international agreements, liquids must not completely fill a receptacle at a temperature of 55°C. At this temperature a minimum ullage of 2 per cent should be left.</p>		4;1.1.5	
c)	<p>The primary packaging (which may include composite packaging), for which retention of the liquid is a basic function, must be capable of withstanding, without leakage, an internal pressure which produces a pressure differential of not less than 75 kPa or a pressure related to the vapour pressure of the liquid to be conveyed, whichever is the greater. The pressure related to the vapour pressure must be determined by the method shown in 4;1.1.6. Tests on sample receptacles must be carried out to demonstrate the capability of the primary packaging to withstand the above pressure.</p>		4;1.1.6	<p>ID8000 uses the term 'primary packaging' which is actually 'inner packaging' by definition. For consistency use the term 'inner packaging'?</p>

	<p style="text-align: center;">ID8000 Packing Instruction Y963</p>	<p style="text-align: center;">Limited Quantity</p>	<p style="text-align: center;">Technical Instructions relevant reference</p>	<p style="text-align: center;">Comment</p>
d)	<p>Stoppers, corks or other such friction-type closures must be held securely, tightly and effectively in place by positive means. The closure device must be so designed that it is extremely improbable that it can be incorrectly or incompletely closed and must be such that it may be easily checked to determine that it is completely closed.</p>		<p>4;1.1.4 6;3.2</p>	<p>The first sentence here is really only applied to glass or plastic inner packagings for liquids?</p>
e)	<p>Inner packagings must be tightly packed in strong outer packagings and must be so packed, secured or cushioned so as to prevent any breakage, puncture or leakage of contents into the outer packaging(s) during normal conditions of transport.</p>		<p>4;1.1.10</p>	<p>See a) above as this is also a part of 4;1.1.10</p>
e)	<p>Absorbent material must be provided for glass or earthenware inner packaging(s) containing consumer commodities in Class 3 or liquids of Division 6.1, in sufficient quantity to absorb the liquid contents of the largest of such inner packagings contained in the outer packaging. Absorbent and cushioning material must not react dangerously with the contents of the inner packagings. Notwithstanding the above, absorbent material may not be required if the inner packagings are so protected that breakage of the inner packagings and leakage of their contents from the outer packaging will not occur during normal conditions of transport.</p>		<p>4;1.1.3.2</p>	

	<p style="text-align: center;">ID8000 Packing Instruction Y963</p>	<p style="text-align: center;">Limited Quantity</p>	<p style="text-align: center;">Technical Instructions relevant reference</p>	<p style="text-align: center;">Comment</p>
f)	<p>Inner packagings containing liquids, excluding flammable liquids in inner packagings of 120 mL or less, must be packed with their closures upward and the upright position of the package must be indicated by "Package orientation" labels (Figure 5-26). These labels, or pre-printed package orientation labels meeting the same specification as either Figure 5-26 or ISO Standard 780-1997, must be affixed to, or printed on, at least two opposite vertical sides of the package with the arrows pointing in the correct direction.</p>		4;1.1.13	
g)	<p>Each completed package as prepared for shipment must not exceed a gross mass of 30 kg G.</p>	<p>The gross mass per package must not exceed 30 kg.</p>	3;4.3.2	<p>Same but slightly different wording</p>
h)	<p>Class 2 substances must be further limited to aerosol products containing non-toxic compressed or liquefied gas(es) that are necessary to expel liquids, powders or pastes, packed in inner non-refillable non-metal receptacles not exceeding 120 mL capacity each, or in inner non-refillable metal receptacles not exceeding 820 mL capacity each (except that flammable aerosols must not exceed 500 mL capacity each), subject in either case to the following provisions:</p>		<p>6;3.2.7 6;3.2.8 6;5.4.2</p>	

	<p style="text-align: center;">ID8000 Packing Instruction Y963</p>	<p style="text-align: center;">Limited Quantity</p>	<p style="text-align: center;">Technical Instructions relevant reference</p>	<p style="text-align: center;">Comment</p>
	<p>1) the pressure in the aerosol must not exceed 1 500 kPa at 55°C and each receptacle must be capable of withstanding, without bursting, a pressure of at least 1.5 times the equilibrium pressure of the contents at 55°C;</p>		<p style="text-align: center;">PI Y203</p>	<p>IP.7C is plastic aerosols and the pressures quoted in Y963 h) 1) are not equivalent to 6;3.2.8. Only IP.7, IP.7A and IP.7B are mentioned for ID8000 in h) 2), etc. The pressure in the aerosol for PI Y203 must not exceed 1245 kPa - Aerosols above 1245 kPa but not exceeding 1500 kPa are in PI 203 and not allowed in limited quantities.</p>
	<p>2) if the pressure in the aerosol exceeds 970 kPa at 55°C but does not exceed 1 105 kPa at 55°C, an inner IP.7, IP.7A or IP.7B metal receptacle must be used;</p>			
	<p>3) if the pressure in the aerosol exceeds 1 105 kPa at 55°C but does not exceed 1 245 kPa at 55°C, an IP.7A or IP.7B metal receptacle must be used;</p>			
	<p>4) if the pressure in the aerosol exceeds 1 245 kPa at 55°C, an IP.7B metal receptacle must be used;</p>			

	<p style="text-align: center;">ID8000 Packing Instruction Y963</p>	<p style="text-align: center;">Limited Quantity</p>	<p style="text-align: center;">Technical Instructions relevant reference</p>	<p style="text-align: center;">Comment</p>
	<p>5) IP.7B metal receptacles having a minimum burst pressure of 1 800 kPa may be equipped with an inner capsule charged with a non-flammable, non-toxic compressed gas to provide the propellant function. In this case, the pressures indicated in 1), 2), 3) or 4) do not apply to the pressure within the capsule. The quantity of gas contained in the capsule must be so limited such that the minimum burst pressure of the receptacle would not be exceeded if the entire gas content of the capsule were released into an aerosol;</p>			
	<p>6) the liquid contents must not completely fill the closed receptacle at 55°C;</p>			
	<p>7) each aerosol exceeding 120 mL capacity must have been heated until the pressure in the aerosol is equivalent to the equilibrium pressure of the contents at 55°C, without evidence of leakage, distortion or other defect; and</p>			
	<p>8) the valves must be protected by a cap or other suitable means during transport.</p>			
<p>i)</p>	<p>For aerosols containing a biological or medical preparation which will be deteriorated by a heat test and which are non-toxic and non-flammable, packed in inner non-refillable receptacles not exceeding 575 mL capacity each, the following provisions are applicable:</p>		<p style="text-align: center;">PI Y204</p>	
	<p>1) the pressure in the aerosol must not exceed 970 kPa at 55°C;</p>			
	<p>2) the liquid contents must not completely fill the closed receptacle at 55°C;</p>			

	<p style="text-align: center;">ID8000 Packing Instruction Y963</p>	<p style="text-align: center;">Limited Quantity</p>	<p style="text-align: center;">Technical Instructions relevant reference</p>	<p style="text-align: center;">Comment</p>
	<p>3) one aerosol out of each lot of 500 or less must be heated until the pressure in the aerosol is equivalent to the equilibrium pressure of the contents at 55°C, without evidence of leakage, distortion or other defect; and</p>			
	<p>4) the valves must be protected by a cap or other suitable means during transport.</p>			
j)	<p>Except for aerosols, inner packagings must not exceed:</p>			
	<p>1) 500 mL for liquids; and</p>			
	<p>2) 500 g for solids.</p>			
k)	<p>Consumer commodities shipped according to these provisions may be shipped in a unit load device or other type of pallet prepared by a single shipper provided they contain no other dangerous goods. The shipper must provide the operator with written documentation stating the number of packages of consumer commodities contained in each unit load device or other type of pallet.</p>		<p>7;1.4.1b)</p>	<p>Not permitted for limited quantities</p>
l)	<p>The gross mass on the dangerous goods transport document must be shown as:</p>		<p>5;4.1.5.1</p>	
	<p>1) for one package, the actual gross mass of the package;</p>			
	<p>2) for more than one package, either the actual gross mass of each package or as the average mass of the packages. (For example, if there are 10 packages and the total gross mass of them is 100 kg, the dangerous goods transport document may show this as “average gross mass per package 10 kg”.)</p>			
		<p>3;4.5.1 Packages containing limited quantities of dangerous goods must be marked as required by the applicable paragraphs of 5;2, except that 5;2.4.4.1 does not apply.</p>	<p>5;2 except that 5;2.4.4.1 does not apply.</p>	

	<p style="text-align: center;">ID8000 Packing Instruction Y963</p>	<p style="text-align: center;">Limited Quantity</p>	<p style="text-align: center;">Technical Instructions relevant reference</p>	<p style="text-align: center;">Comment</p>
m)	<p>Packages prepared in accordance with these provisions must be durably and legibly marked with the mark shown in Figure 3-1.</p>	<p>3;4.5.2 Packages containing limited quantities of dangerous goods and prepared in accordance with this chapter must bear the marking shown in Figure 3-1 below. The marking must be readily visible, legible and able to withstand open weather exposure without a substantial reduction in effectiveness.</p>		<p>Not all Limited Quantity marking requirements are applied to ID8000</p>
		<p>3;4.5.3 When packages containing dangerous goods in limited quantities are placed in an overpack, the overpack must be marked with the word "OVERPACK" and the marking required by this chapter, unless the markings representative of all dangerous goods in the overpack are visible.</p>	<p>5;2.4.10</p>	