



WORKING PAPER

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

Memphis, 30 April to 4 May 2007

- Agenda Item 5: Resolution, where possible, of the non-recurrent work items identified by the Air Navigation Commission or the panel**
5.2: Reformatting of the packing instructions

**COMMENTS ON PROPOSED REFORMATTED PACKING
INSTRUCTIONS**

(Presented by G. A. Leach)

SUMMARY

This paper provides comments on the proposed reformatted packing instructions.

Action by the DGP-WG is in paragraph 2.

1. INTRODUCTION

1.1 In the United Kingdom, a meeting was held with various interested parties from Industry concerning the proposed reformatted packing instructions.

2. ACTION BY THE DGP-WG

2.1 The DGP-WG is invited to consider the comments on the proposed reformatted packing instructions in Appendix A to this paper.

APPENDIX

ICAO PACKING INSTRUCTIONS

POINTS FOR CONSIDERATION

Following consultation with industry within the United Kingdom (carriers, consignors, trainers and other interested parties), the following comments in relation to the proposed reformatted packing instructions are offered.

3. THE PACKING INSTRUCTION NUMBERING SYSTEM

3.1 There is general support for the separation of packing instructions, as far as possible and practical, between passenger and cargo aircraft to enable the correct allocation of quantities and packaging types to particular substances. However it is recognised that the distinction is not always possible and the fact that not all packing instructions will have this distinction could be confusing.

3.2 Comments on the individual elements of the code are shown below:

Code	Comment
30	The class number should form the basis of the start of a packing instruction number. A single digit i.e. 3, 4, 5 etc is preferable.
P/C	The consignor's declaration requires a notification of aircraft type and the Cargo Aircraft only label provides visual information. If this code is maintained why do you need to retain the check box on the declaration indicating aircraft type?
S/L	The physical state is unnecessary as part of the number. The Dangerous Goods List signifies the physical state (liquid or solid) by showing volume or mass. The UN dealt with substances having a single UN number for the liquid or solid state some years ago by issuing about 120 new UN numbers and there should be no anomalies left and therefore no confusion.
A/B/C	The subsection number is unnecessary for inclusion in documentation as this is a check for the consignor, but the operator is in no position to confirm whether the correct sub section has been used as he cannot open the package. In addition the consignor signs a declaration that he has complied with all requirements

3.3 A general point was raised that such a numbering system would require more space on the consignor's dangerous goods transport document.

3.4 Whilst English may be the language of air transport consignors, chemical companies are sometimes far away from airports and airlines, they do not directly interface with the carriers and will not necessarily speak English. Both the existing system in the TIs and the system adopted by the UN have avoided the use of letters or words to avoid difficulties in translation and transposition.

3.5 Taking these points into account: The view during our consultation was that the numbering system is too complicated. If the numbering system is to be changed who is it intended will benefit from the proposed system?

3.6 It is therefore proposed that ICAO continues to use the current type of numbering system but it is recognised that it would be confusing and dangerous to use the existing sequence. Taking class 3 as an example, numbers from 350 upwards have not been used, and it would be possible to be able to distinguish passenger, cargo and other packing instructions by using different groups. For example:

350 – 359 Passenger

360 – 369 Cargo Aircraft Only

370 – 379 Specials (including combined passenger and cargo aircraft only)

A similar approach could be applied to the other classes.

3.7 A table of correspondence could be placed in Part 4 Chapter 1 to enable anyone to check which type of packing instruction a number is allocated to.

4. LAYOUT OF THE PACKING INSTRUCTION

4.1 The new layout of the packing instructions is a significant improvement over those in the current edition of the Technical Instructions but there are a number of points where the structure could be improved:

4.1.1 The sequence of information in the new packing instructions does not follow that found in the current Technical Instructions or the UN packing instructions, which are intended to give the reader a logical sequence i.e. the general duties for all packagings followed by the specific requirements.

For example all packagings must comply with the general packing requirements at the beginning of Part 4, Chapter 1, yet, in the current design, this requirement is placed between combination packagings and single packagings, inferring that it does not apply to both.

Some terminology e.g. “Outer Container” should be “Outer Packaging” and “Additional Packaging Requirements” should be “Additional Packing Requirements”.

4.1.2 Alternative layouts: Following consultation it was felt that there could be some improvements to the layout to make them more user friendly and to force readers to make use of Part 4 Chapter 1. Taking account of the above comments the examples below place Part 4 references at the top of the packing instruction, ensuring the reader is aware that they apply on all occasions.

A column has been added against the inner packagings to show whether or not the single packaging option is available, this column is intended as an aid to users.

4.1.3 Outer packagings of combination packagings. It was agreed at the DGP that every possible outer packaging should be available for combination packagings. Instead of repeating the list of permitted outer packagings in each packing instruction, a table could be placed once in the introduction to the packing instructions (Part 4 Chapter 1) listing all those permitted. This has the advantage of saving several pages of text and forces consignors and other users to keep referring back to the general conditions of Part 4 Chapter 1. It would enable those carrying out dangerous goods acceptance checks to

have an easy reference card produced to use when carrying out a check. There are a few substances, notably in division 5.2, where certain outer packagings are prohibited; these would need highlighting as shown in the table XXXX (below).

Set out below are alternative versions of 30PL, 41X01, 41X02 and 41X03.

30PL (350)					
The general requirements of Part 4 Chapter 1 must be met					
Substances must be compatible with their packagings as required by 4; 1.1.3					
COMBINATION PACKAGINGS					SINGLE PACKAGINGS
Packing Instruction	Packing group	Inner packaging	Inner packaging quantity	Outer Quantity	
350-a	I	Glass (IP1)	0.5L	0.5L	NO
		Plastic (IP2)	Forbidden		
		Metal (IP3)	0.5L		
350-b	I	Glass (IP1)	0.5L	1.0L	NO
		Plastic (IP2)	Forbidden		
		Metal (IP3)	0.5L		
350-c	II	Glass (IP1)	1.0L	1.0L	NO
		Plastic (IP2)	1.0L		
		Metal (IP3)	1.0L		
350-d	II	Glass (IP1)	1.0L	5.0L	NO
		Plastic (IP2)	5.0L		
		Metal (IP3)	5.0L		
350-e	III	Glass (IP1)	2.5L	5.0L	5.0L
		Plastic (IP2)	5.0L		
		Metal (IP3)	5.0L		
350-f	III	Glass (IP1)	2.5L	60.0L	60.0L
		Plastic (IP2)	10.0L		
		Metal (IP3)	10.0L		
OUTER PACKAGINGS OF COMBINATION PACKAGINGS					
See table XX in Part 4					
ADDITIONAL PACKING REQUIREMENTS FOR COMBINATION PACKAGINGS					
PG I					
<ul style="list-style-type: none"> • Plastic inner packagings are not permitted • Glass or metal inner packagings must be packed with absorbent material and placed in a rigid leakproof receptacle before packing in outer packagings • Metal packagings must be corrosion resistant or with protection against corrosion for substances with a class 8 sub risk 					
PGII					
<ul style="list-style-type: none"> • Glass inner packagings must be packed with absorbent material and placed in a leakproof liner, plastic bag or equally effective means of intermediate leakproof containment • Plastic and metal inner packagings must be placed in a leakproof liner, plastic bag or equally effective means of intermediate leakproof containment • Metal packagings must be corrosion resistant or with protection against corrosion for substances with a class 8 sub risk 					

PGIII				
<ul style="list-style-type: none"> • For combination packages all inner packagings must be placed in a plastic bag or equally effective means of protection • Packagings must meet the level II performance standards ¹ 				
SINGLE PACKAGINGS FOR PGIII (350-e or 350-f)				
Composites	Cylinders	Drums	Jerricans	
ALL	See 4; 2.7	Aluminium (1B1, 1B2)	Aluminium (1B1, 1B2)	
		Plastic (1H1, 1H2)	Plastic (3H1, 3H2)	
		Steel (1A1, 1A2)	Steel (3A1, 3A2)	
ADDITIONAL PACKING REQUIREMENTS FOR SINGLE PACKAGINGS				
PGIII				
<ul style="list-style-type: none"> • Packagings must meet the level II performance standards ¹ 				

Footnote

The following footnote is intended to aid discussion of this document it is not intended that this should be in any final version that may be adopted.

¹ **This should only apply to substances with a Division 8 sub risk (see 8 below) and should therefore be reworded.**

Suggested table for permitted outer packagings of combination packagings, for insertion in Part 4 Chapter 1

Table XX Outer packagings permitted for inner receptacles and articles.				
For classes 3, 4, 5, 6.1, 8 and 9				
Packagings must comply in all respects with the requirements of the test report (Part 4 xxxx). The use of any particular outer packaging is subject to any Additional Packing Requirements specified in the packing instructions. A packing instruction may prohibit certain outer packagings				
These outer packagings are also permitted for limited quantity shipment (Y Packing instructions) but they must comply with the provisions of Part 3 Chapter 4.				
Kind	Material	Category	Code	Prohibited for Class/Div
1. Drums	A. Steel	removable head	1A2	5.2*
	B. Aluminium	removable head	1B2	5.2*
	D. Plywood		1D	
	G. Fibre		1G	
	H. Plastics	removable head	1H2	
	N. Metal, other than steel or aluminium	removable head	1N2	5.2*
3. Jerricans	A. Steel	removable head	3A2	5.2*
	B. Aluminium	removable head	3B2	5.2*

	H. Plastics	removable head	3H2	
4. Boxes	A. Steel		4A	5.2*
	B. Aluminium		4B	5.2*
	C. Natural wood	Ordinary	4C1	
		with sift-proof walls	4C2	
	D. Plywood		4D	
	F. Reconstituted wood		4F	
	G. Fibreboard		4G	
	H. Plastics	expanded	4H1	
		Solid	4H2	
5. Bags	Forbidden			
6. Composite packagings	Forbidden			

A note can be added to the packing instruction (52X01) as an Additional requirement stating:

“Not all outer packagings listed in Table XXXX are permitted for the substances allocated to this packing instruction”

41X01				
The general requirements of Part 4 Chapter 1 must be met				
Substances must be compatible with their packagings as required by 4; 1.1.3 (see Note 1 below)				
FOR PASSENGER AND CARGO AIRCRAFT				
COMBINATION PACKAGINGS				SINGLE PACKAGINGS
Inner packaging	Inner packaging quantity	Outer Quantity Passenger	Outer Quantity Cargo	
Glass (IP1) ⁵	0.5kg	**	**	NO
Plastic (IP2)	0.5kg			
Metal (IP3) ⁵	0.5kg			
Plastic bag (IP5)	0.5kg			
OUTER PACKAGINGS OF COMBINATION PACKAGINGS				
See table XX in Part 4				
ADDITIONAL PACKING REQUIREMENTS FOR COMBINATION PACKAGINGS				
<ul style="list-style-type: none"> • Packagings must be designed and constructed to prevent the loss of water or alcohol content or the content of the phlegmatizer • Packagings must be so constructed and closed so as to avoid an explosive over pressure or pressure build up of more than 300kPa (3bar) • The type of packaging and the maximum permitted quantity per packaging are limited by the provisions of Part 2, 1.5.2 and may be less than the limits shown • Plastic or glass inner packagings must be packed in tightly closed metal or rigid plastic receptacles before packing in outer packagings. Inner packagings must be packed with absorbent material in sufficient quantity to absorb the contents in the event of leakage 				

Note 1: For UN 1310, 1320, 1321, 1322, 1344, 1348, 1349, 1517, 3317 the inner packagings must be lead free

In the current 41X01 Dipicryl sulphide, wetted, UN2852, is limited to glass inner packagings. There is no restriction in the UN Recommendations. Suggest this is reviewed.

** If the outer quantities are standard then they can be entered here.

Below is a merger of 41X02 and 41X03. Why were these “X” in the first place surely they should have been “P” and “C”.

41XXXXXXXXXXXX				
The general requirements of Part 4 Chapter 1 must be met				
Substances must be compatible with their packagings as required by 4; 1.1.3				
FOR PASSENGER AND CARGO AIRCRAFT				
COMBINATION PACKAGINGS				SINGLE PACKAGINGS
	Inner packaging	Inner packaging quantity	Outer Quantity	CARGO AIRCRAFT ONLY
UN2555 Nitrocellulose with water	Glass (IP1)	1.0kg	15kg	50kg
	Plastic (IP2)	1.0kg		
	Metal (IP3)	1.0kg		
	Plastic bag (IP5)	1.0kg		
UN2556 Nitrocellulose with water or UN2557 Nitrocellulose with or without plasticizer	Glass (IP1)	1.0kg	1.0kg	15kg
	Plastic (IP2)	1.0kg		
	Metal (IP3)	1.0kg		
	Plastic bag (IP5)	1.0kg		
OUTER PACKAGINGS OF COMBINATION PACKAGINGS				
See table XX in Part 4				
ADDITIONAL PACKING REQUIREMENTS FOR COMBINATION PACKAGINGS				
<ul style="list-style-type: none"> • Plastic inner packagings are not permitted • Packagings must be designed and constructed to prevent the loss of water or alcohol content or the content of the phlegmatizer • Packagings must be so constructed and closed so as to avoid an explosive over pressure or pressure build up of more than 300kPa (3bar) 				
SINGLE PACKAGINGS				
Composites	Cylinders	Drums	Jerricans	
ALL	See 4; 2.7	Aluminium (1B1, 1B2)	Aluminium (1B1, 1B2)	
		Plastic (1H1, 1H2)	Plastic (3H1, 3H2)	
		Steel (1A1, 1A2)	Steel (3A1, 3A2)	
		Fibre (1G)		

ADDITIONAL PACKING REQUIREMENTS FOR SINGLE PACKAGINGS
<ul style="list-style-type: none">• Packagings must be designed and constructed to prevent the loss of water or alcohol content or the content of the phlegmatizer• Packagings must be so constructed and closed so as to avoid an explosive over pressure or pressure build up of more than 300kPa (3bar)

Note removable head packagings have been reinserted as this is a packing instruction for solids and most nitrocellulose is transported in these type of drums (the UK is still a big manufacturer).

5. LINERS AND ABSORBENT MATERIAL FOR PGII SUBSTANCES

The proposal in these packing instructions to add a more general requirement for liners and absorbent material is a significant change which we believe is outside the scope of the guiding principles for this exercise and it should be the subject of a separate, fully justified, proposal.

[Part of the proposal is to extend the requirement for liners to all combination packagings. This change appears to be beyond the remit of the packing instruction exercise and should be justified as a separate proposal. The UN testing requires that a package is tested as “prepared for transport” and it must pass the tests.

If a package passes the tests without a liner, why should it be mandatory to fit one?

If the package fails because of poor handling, why should a consignor be penalised?

This does raise fundamental issues about the UN packagings and taking account that the UN packaging should, as far as possible, be for multimodal use and such a fundamental change should be considered by the UN sub-committee.

If liners are fitted, depending on what is used, the packaging may exceed the UN performance mark, which would result in non-compliance and retesting would be required. This is an expense for which no justification has been put forward.

There is no requirement to make the liner compatible with the contents.

[This proposal would affect packages in all packing groups. As most PGI substances require some sort of added protection now and as PGI is less likely to be shipped by air then it may be acceptable to leave it as a requirement.]

Absorbent Material

This would become a requirement in the new packing instructions and it has even greater problems than the liner issue. Absorbent material will change the mass and dimensions of a tested package, meaning retesting of design types which have worked perfectly well for many years.

The current text in the Technical Instructions concerning absorbent material (Part 4 1.1.9) was intentionally developed. There are occasions where absorbent material can produce a hazard when the person opens the package in that the contents of the inner receptacle can be contaminated. Cleanliness is particularly important in foodstuff, pharmaceutical and computer chip industries.

This proposal raises the same issues that have been set out above for liners.

There is NO requirement in the current Technical Instructions to use absorbent material and the addition to an approved package will almost invariably take the package over the performance marked mass, leading to retesting.]

6. **TRANSITIONAL ARRANGEMENTS**

The general view for transition was that the new packing instructions should be published with a changeover date i.e. no overlapping transition.

7. **COMMON PACKING INSTRUCTIONS**

There are a few packing instructions which are essentially common to all modes notably 620, 650 and 300.

Where they exist, should a note be added in the particular packing instruction that it meets the requirement of UN packing

— END —