International Civil Aviation Organization

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WORKING PAPER

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

Abu Dhabi, United Arab Emirates, 7 to 11 November 2010

Agenda Item 6: Other business

REVISION OF THE GUIDANCE MATERIAL FOR THE PANEL

(Presented by D. Brennan)

SUMMARY

Guidance for the Panel to aid in preparation of the Technical Instructions was developed in 1999, but has not been updated since. It is proposed that this document should be brought up-to-date and then maintained.

Action by the DGP-WG is in paragraph 2.

1. INTRODUCTION

1.1 The Dangerous Goods Panel Guidance Document was produced in 1999 to assist the Panel with updating the *Technical Instructions for the Safe Transport of Dangerous Goods by Air* (Doc 9284). The guidance document contains general principles used in developing the Technical Instructions and guidance material that can be used when deciding how to make changes to the Technical Instructions.

1.2 This document however has not been updated since 1999 and is in need of revision. The guidance document also contains policy on the content of the *Supplement to the Technical Instructions for the Safe Transport of Dangerous Goods by Air* (Doc 9284SU) to the Technical Instructions, which is now out-of-date.

1.3 It is proposed that this document be brought up-to-date to reflect the content of the 2011-2012 Edition of the Technical Instructions and that this document be maintained as decisions on matters of general principle are taken by the Panel which should be recorded for future consideration.

1.4 A start has been made in updating the guidance document which has been attached to this working paper. The Working Group is invited to review the changes and provide comments as required. There are some statements in the guidance document that need the Panel's consideration particularly with

respect to the content of the Supplement where in paragraphs 1.2 and 5.1.1 there is a statement that the dangerous goods list, special provisions and the packing instructions contained in the Supplement are to be deleted from the Supplement and instead this information incorporated into the body of the Technical Instructions.

2. ACTION BY THE DGP-WG

2.1 The DGP-WG is invited to:

a) review the draft changes to the guidance document and to consider what other changes should be made; and

b) establish a small working group by correspondence to continue the review and revision of the guidance document with the objective of having a completely revised document for approval by the panel at DGP/23.

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APPENDIX

REVISED GUIDANCE MATERIAL FOR THE DANGEROUS GOODS PANEL TO AID IN PREPARATION OF THE TECHNICAL INSTRUCTIONS AND SUPPORTING DOCUMENTS

DANGEROUS GOODS PANEL

GUIDANCE FOR THE PANEL TO AID IN PREPARATION OF THE *TECHNICAL INSTRUCTIONS* AND SUPPORTING DOCUMENTS

INTRODUCTION

This document has been produced to assist the Dangerous Goods Panel with the up-dating of the Technical Instructions. It contains guidance material and criteria which can be used when deciding how to make changes to those Instructions and how new items of dangerous goods should be incorporated into them and other documents, including the *Emergency Response Guidance for Aircraft Incidents Involving Dangerous Goods (Doc 9481-AN/928).*

The general principles used in developing the provisions of the Technical Instructions are to be found in the Foreword to the Technical Instructions. What is contained in this document is the detailed material to aid in the interpretation of those general principles.

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PART 1 - GENERAL

1.1 Introduction and basis for the Technical Instructions

1.1.1 Annex 18 contains the standards and recommended practices for the transport of dangerous goods by air. These are written broadly and without technical detail, in order that amendment to them is required only infrequently. The Technical Instructions contain all the detailed material; they are amended at regular intervals on a cycle commensurate with the cycle of amendment applied to the up-dating of the UN *Recommendations on the Transport of Dangerous Goods* (Model Regulations).

1.1.2 The Air Navigation Commission require the Panel to use the Recommendations, which are prepared by the UN ~~Committee~~ Subcommittee of Experts, and the Regulations for the Safe Transport of Radioactive Material (which are produced by the International Atomic Energy Agency) as the base documents for the development and up-dating of the Technical Instructions. This ensures there is compatibility of the basic requirements between all the modes of transport (i.e.: air, road, rail and sea), so that shippers can have a co-ordinated approach to consigning dangerous goods no matter which modes are involved and also avoid problems when it is necessary to transfer goods between those modes.

1.1.3 The UN Recommendations are ~~now~~ acknowledged as the model regulations on which the modes of transport should base their requirements. ~~It has been decided that t~~The Technical Instructions ~~will~~ follow, as far as possible, both the format and content of the ~~Recommendations~~Model Regulations; this means that, although the requirements for radioactive materials will be those of the International Atomic Energy Agency, their method of inclusion in the Instructions will be the same as in the Recommendations. The UN Recommendations and the IAEA Regulations have been developed to cover all modes of transport and may, therefore, contain some requirements that are inappropriate for air transport. This has to be taken into account when deciding how to incorporate changes made to the UN Recommendations and IAEA Regulations, since they may not be applicable or may have to be modified before being included in the Technical Instructions.

1.1.4 Amendments to the Technical Instructions are also made to reflect changes in the operational aspects of handling dangerous goods in air transport; and requirements may be developed which recognise that additional conditions need to be imposed for particular dangerous goods.

1.2 Supplement and Emergency Response Guidance

1.2.1 A decision in principle was taken in March 1999 that the Supplement would contain information and guidance material only of interest to Contracting States; this would result in a stable document that would not need to be republished every two years. All the information that relates to shipping dangerous goods in particular circumstances (i.e.: the additional classification criteria, supplementary dangerous goods list, special provisions, packing instructions and other packing information) will be transferred to the main Technical Instructions. However, this change in the use of the Supplement will not be implemented until the 2003/2004 edition[1], due to the amount of work needed to make the changes. Once the change is made, the information for the Supplement will include guidance on providing information for passengers and the reporting of accidents and incidents. See also Part 5.

1.2.2 The Emergency Response Guidance for Aircraft Incidents Involving Dangerous Goods is amended to reflect changes to the list of dangerous goods. The amendment cycle follows that for the Technical Instructions. See also Part 6.

[1] *Comment.*— This needs to be revised. There needs to be a decision as to what content should be in the Supplement, i.e. will all of the existing content be retained and amplified, or is there a benefit in consolidating the material into the Supplement?

1.3 Differences between the UN Recommendations and the Technical Instructions

1.3.1 Whilst the Technical Instructions follow closely the UN Recommendations, there are some requirements in those Recommendations which have no application in air transport. When this occurs the Panel can decide the requirement does not need be included in the Instructions. Examples of this are:

(a) proper shipping names which are not used in air transport (eg: the list of dangerous goods does not include Hay, Straw or Bhusa [UN 1327]);

(b) carriage requirements which are inappropriate in air transport (eg: there are no requirements shown for identifying fumigated transport units [5.5.2 in the UN Recommendations]).

1.3.2 In addition, the Technical Instructions contain requirements that are absent from the UN Recommendations as the Panel has developed provisions that are specific to air transport. Examples of this are:

(a) Part 7 – Operators Responsibilities, contains detailed responsiblities that addresses the acceptance, handling and loading of dangerous goods. Also included in this part is specification on provision of information to the pilot-in-command and requirements on incident reporting;

(b) Part 8 – Provisions Concerning Passengers and Crew, specifies provisions for dangerous goods that may be permitted in passenger and crew baggage.

1.4 Definitions

1.4.1 Where a definition is needed in the Annex and/or the Technical Instructions and it already appears in another ICAO Annex, the Air Navigation Commission will expect that definition to be used. This is for consistency.

1.4.2 Where a definition appears in the UN Recommendations or IAEA Regulations it is included in the Technical Instructions providing it is applicable and it does not conflict with any definition already used in another ICAO Annex; in which case it will be necessary to resolve any conflict before it is added to the Technical Instructions.

1.4.3 Any term used in the Technical Instructions which may not be understood can be defined. However, where a term has its usual dictionary meaning or is used in its usual technical sense it is not further defined.

1.5 Definition of shipper

1.5.1 There is no definition of shipper in either Annex 18 or the Technical Instructions. In past Panel discussions it has been decided that any definition could result in a loophole and preference has been given to relying on what has become the accepted meaning, which is that it is a synonym for "consignor". Whilst the term "shipper" is used in most of the requirements, in those paragraphs where it is necessary to more specifically identify the relevant person or organisation the wording used is "person who offers ...".

1.6 Training

1.6.1 The requirements for dangerous goods training set out in Part 1;4 of the Technical Instructions are based on the UN Recommendations, although the Technical Instructions provisions are more detailed in that specific categories of persons are identified who must received dangerous goods training and in addition guidance is provided on the training elements that should be applied to each category of person.

1.7 Dangerous goods security

1.7.1 Provisions relating to dangerous goods security that reflect the content of the UN Recommendations were adopted into the Technical Instructions with effect the 2005-2006 edition, although all of the dangerous goods security provisions in the Technical Instructions have only been included as recommendations, not as mandatory requirements, i.e. “should” and not “must”.

PART 2 - LISTING OF DANGEROUS GOODS

2.1 Lists of dangerous goods

2.1.1 The list of dangerous goods in the Technical Instructions is that which is included in the UN Recommendations, with the addition of specific items which are peculiar to air transport. The list is shown in alphabetical order, although this is not the order used for the list in the Recommendations, since it is felt the user would search primarily by name and not by number.

2.1.2 It is now agreed in principle that the information in the dangerous goods list in the Supplement will eventually be transferred to the list in the Technical Instructions[2]. In the meantime the supplementary dangerous goods list will show all those entries which appear in the list in the Technical Instructions as 'Forbidden' on passenger aircraft or both passenger and cargo aircraft; and give additional information as to how they can be consigned under an appropriate national authority approval or exemption. Not all of the entries in the supplementary list have additional information, eg: Allyl alcohol, UN 1098 still shows only 'Forbidden/Forbidden' in Columns 9 - 12 of the supplementary list. This does not mean the Panel intends the item to be totally forbidden but only that no suitable universal packing method and quantity limitation has been established.

2.2 UN and ID numbers

2.2.1 Where an item is listed in the UN Recommendations it will be allocated automatically a UN number by the UN Committee of Experts. Where the item has been identified by the Panel for inclusion in the list of dangerous goods, the UN Sub~~C~~committee of Experts will be asked to allocate a UN number and a case for doing so needs to be made to them. However, if it is considered to be peculiar to air transport, the Committee may decline to do so, and in such instances the item is allocated an "ID" number.

2.3 Quantity limitations for the lists of dangerous goods

2.3.1 The quantity limitations shown in columns 10 and 12 of the lists of dangerous goods in the Technical Instructions and the Supplement are applied according to the criteria shown in Tables 1 through 3 below. The entries in parenthesis in columns 4 and 5 of Table 1 and columns 5 and 6 of Table 2 are appropriate for those dangerous goods listed in the Supplement. Where only one figure is shown this means the Class/Division is permitted in the list in the Technical Instructions. However, sometimes 'Forbidden' may need to be considered for a particular item, although according to Table 1 the Class/Division is generally permitted. Also, some variation in the quantity shown for the hazard in general may need to be considered.

2.3.2 Where articles and substances have only a primary risk the maximum net quantity per package is according to Table 1; where articles and substances have subsidiary risks see Table 2 for the maximum net quantity per package.

2.3.3 Columns 9 and 10 of the list in the Technical Instructions show the maximum net quantities applicable to limited quantities; the criteria for these are in Table 3.

[2] Comment — This needs to be reviewed to determine if that is the DGP's intention.

TABLE 1

Maximum Net Quantities Per Package For Dangerous Goods With Only A Primary Hazard

Class/ Division	*Packing group*	*Physical state*	*Passenger aircraft*	*Cargo aircraft*
1	*2*	*3*	*4*	*5*
DIVISIONS 1.1 TO 1.3 - EXPLOSIVES				
1.1			Forbidden (Forbidden)	Forbidden (Forbidden)
1.2			Forbidden (Forbidden)	Forbidden (Forbidden)
1.3 *(Note 1)*			Forbidden (Forbidden)	Forbidden (Forbidden) 75 kg
DIVISION 1.4 - EXPLOSIVES				
1.4B			Forbidden (Forbidden)	75 kg
1.4C			Forbidden (Forbidden)	75 kg
1.4D			Forbidden (Forbidden)	75 kg
1.4E			Forbidden (Forbidden)	75 kg
1.4F			Forbidden (Forbidden)	Forbidden (Forbidden)
1.4G			Forbidden (Forbidden)	75 kg
1.4S			25 kg	100 kg
DIVISIONS 1.5 AND 1.6 - EXPLOSIVES				
1.5D			Forbidden (Forbidden)	Forbidden (Forbidden)
1.6N			Forbidden (Forbidden)	Forbidden (Forbidden)
CLASS 2 - GASES				
2.1		Gases, not aerosols	Forbidden (5 kg)	150 kg (150 kg)
		Aerosols	75 kg	150 kg
2.2		Gases, not aerosols and not refrigerated liquefied gases	75 kg	150 kg
		Aerosols	75 kg	150 kg
		Refrigerated liquefied gas	50 kg	500 kg
2.3		Gases	Forbidden *(Note 2)*	Forbidden *(Note 2)*
CLASS 3 - FLAMMABLE LIQUID				
3	I	Liquid	1 L	30 L *(Note 3)*
	II	Liquid	5 L *(Note 3)*	60 L *(Note 3)*
	III	Liquid	60 L *(Note 3)*	220 L *(Note 3)*

TABLE 1 - *(Continued)*

Class/ Division	*Packing group*	*Physical state*	*Passenger aircraft*	*Cargo aircraft*
1	*2*	*3*	*4*	*5*
DIVISION 4.1 - FLAMMABLE SOLID				
4.1	I	Desensitized explosives	0.5 kg / 1 kg *(Note ~~3~~4)*	0.5 kg / 15 kg *(Note ~~3~~4)*
	II	Solid, but not self-reactive substances	15 kg *(Note 3)*	50 kg *(Note 3)*
		Self-reactive liquid *(Note ~~4~~5)*	5 L / 10 L *(Note ~~5~~6)*	10 L / 25 L *(Note ~~5~~6)*
		Self-reactive solid *(Note ~~4~~5)*	5 kg / 10 kg *(Note ~~5~~6)*	10 kg / 25 kg *(Note ~~5~~6)*
	III	Solid, but not self-reactive or related substances	25 kg	100 kg
		Self-reactive or related substance[3]	Forbidden (Individual consideration)	Forbidden (Individual consideration)
DIVISION 4.2 SPONTANEOUSLY COMBUSTIBLE SUBSTANCES				
4.2	I	Pyrophoric liquid	Forbidden (Forbidden)	Forbidden (Forbidden)
		Pyrophoric solid	Forbidden (Forbidden)	Forbidden (Forbidden)
	II	Liquid	1 L	5 L
		Solid	15 kg *(Note 3)*	50 kg *(Note 3)*
	III	Liquid	5 L	60 L
		Solid	25 kg *(Note 3)*	100 kg *(Note 3)*
DIVISION 4.3 - WATER REACTIVE SUBSTANCES				
4.3	I	Liquid	Forbidden (Forbidden)	1 L
		Solid	Forbidden (Forbidden)	15 kg
	II	Liquid	1 L	5 L
		Solid	15 kg	50 kg
	III	Liquid	5 L	60 L
		Solid	25 kg	100 kg
DIVISION 5.1 - OXIDIZERS				
5.1	I	Liquid	Forbidden (Forbidden)	2.5 L
		Solid	1 kg	15 kg
	II	Liquid	1 L	5 L
		Solid	5 kg	25 kg
	III	Liquid	2.5 L	30 L
		Solid	25 kg	100 kg

[3] Comment — Is there anything in this category, or can this row be deleted?

TABLE 1 - *(Continued)*

Class/ Division	*Packing group*	*Physical state*	*Passenger aircraft*	*Cargo aircraft*
1	*2*	*3*	*4*	*5*
DIVISION 5.2 - ORGANIC PEROXIDES				
5.2	II	Liquid *(Note ~~6~~7)*	5 L / 10 L *(Note ~~5~~6)*	10 L / 25 L *(Note ~~5~~6)*
		Solid*(Note ~~6~~7)*	5 kg / 10 kg *(Note ~~5~~6)*	10 kg / 25 kg *(Note ~~5~~6)*
DIVISION 6.1 - TOXIC SUBSTANCES				
6.1(i)	I	Liquid	Forbidden (Forbidden)	Forbidden (Forbidden)
		Solid	Forbidden (Forbidden)	15 kg
6.1(d and o)	I	Liquid	1 L	30 L
		Solid	5 kg *(Note 3)*	50 kg *(Note 3)*
6.1	II	Liquid	5 L *(Note 3)*	60 L *(Note 3)*
		Solid	25 kg	100 kg *(Note 3)*
	III	Liquid	60 L	220 L
		Solid	100 kg	200 kg
DIVISION 6.2 - INFECTIOUS SUBSTANCES				
6.2		Liquid	50 mL ~~*(Note 7)*~~	4 L
		Solid	50 mg ~~*(Note 7)*~~	4 kg
CLASS 8 - CORROSIVE SUBSTANCES				
8	I	Liquid	0.5 L	2.5 L
		Solid	1 kg	25 kg
	II	Liquid	1 L	30 L
		Solid	15 kg	50 kg
	III	Liquid	5 L	60 L
		Solid	25 kg	100 kg
CLASS 9 - MISCELLANEOUS DANGEROUS GOODS				
9			Quantities vary according to individual items	Quantities vary according to individual items

Notes for Table 1

1. Some articles in Division 1.3 are permitted on cargo aircraft, when the articles are for life-saving purposes (eg: Flares, aerial [UN 0093]).

2. The quantity permitted will always be according to Packing Instruction 213 in the Supplement [Note: possibly to become PI 200 in the Supplement].

3. Reduced quantities apply to specific substances such as chlorosilanes, nitrocellulose, etc. Substances for which specific quantity limits or packaging types apply are assigned to non-standard packing instructions are are identified in Table 4, which identifies the packing instructions assigned to each class/division by packing group for passenger aircraft and cargo aircraft only.

4. Quantity varies depending on the sensitivity of the explosive form.

~~4~~5. Self-reactive substances which are temperature controlled are Forbidden on both passenger and cargo aircraft.

~~5~~6. See paragraph 2.4 below.

~~6~~7. Organic peroxides which are temperature controlled are Forbidden on both passenger and cargo aircraft.

~~7. Special Provision A 81 allows blood and blood products known to contain or suspected of containing infectious substances (other than in risk group 4), to be in outer packagings not exceeding 4 L when in primary receptacles not exceeding 500 mL.~~

TABLE 2

Maximum Net Quantities Per Package For Dangerous Goods With A Primary Hazard And One Or More Subsidiary Risks

Primary hazard		*Subsidiary risk(s)*	*Physical state*	*Passenger aircraft*	*Cargo aircraft*
Class/Div	*PG*	*(Note 1)*			
1	*2*	*3*	*4*	*5*	*6*
CLASS 1 - EXPLOSIVES					
1.1		6.1		Forbidden (Forbidden)	Forbidden (Forbidden)
		8		Forbidden (Forbidden)	Forbidden (Forbidden)
1.2		6.1		Forbidden (Forbidden)	Forbidden (Forbidden)
		8		Forbidden (Forbidden)	Forbidden (Forbidden)
1.3		6.1		Forbidden (Forbidden)	Forbidden (Forbidden)
		8		Forbidden (Forbidden)	Forbidden (Forbidden)
1.4B		6.1		Forbidden (Forbidden)	75 kg
		8		Forbidden (Forbidden)	75 kg
1.4C		6.1		Forbidden (Forbidden)	75 kg
		8		Forbidden (Forbidden)	75 kg
1.4D		6.1		Forbidden (Forbidden)	75 kg
		8		Forbidden (Forbidden)	75 kg
1.4E		6.1		Forbidden (Forbidden)	75 kg
		8		Forbidden (Forbidden)	75 kg
1.4F		6.1		Forbidden (Forbidden)	Forbidden (Forbidden)
		8		Forbidden (Forbidden)	Forbidden (Forbidden)
1.4G		6.1		Forbidden (Forbidden)	75 kg
		8		Forbidden (Forbidden)	75 kg
1.4S		6.1		25 kg	100 kg
		8		25 kg	100 kg
1.5D		6.1		Forbidden (Forbidden)	Forbidden (Forbidden)
		8		Forbidden (Forbidden)	Forbidden (Forbidden)
1.6N		6.1		Forbidden (Forbidden)	Forbidden (Forbidden)
		8		Forbidden (Forbidden)	Forbidden (Forbidden)

TABLE 2 - *(Continued)*

Primary hazard		*Subsidiary risk(s)*	*Physical state*	*Passenger aircraft*	*Cargo aircraft*
Class/Div	*PG*	*(Note 1)*			
1	*2*	*3*	*4*	*5*	*6*
DIVISION 2.1 - FLAMMABLE GASES					
2.1		6.1, 8	Gases, not aerosols	Forbidden (Individual consideration)	Forbidden (Individual consideration)
		6.1 I or II	Aerosols	Forbidden (Forbidden)	Forbidden (Forbidden)
		8 I or II	Aerosols	Forbidden (Forbidden)	Forbidden (Forbidden)
		6.1 III	Aerosols	75 kg	150 kg
		8 III	Aerosols	75 kg	150 kg
DIVISION 2.2 - NON-FLAMMABLE, NON-TOXIC GASES					
2.2		5.1	Gases, not aerosols *(Note 2)*	75 kg	150 kg
		6.1	Gases, not aerosols *(Note 2)*	Forbidden (Individual consideration)	Forbidden (Individual consideration)
		8	Gases, not aerosols *(Note 2)*	Forbidden (Individual consideration)	Forbidden (Individual consideration)
		6.1 I or II	Aerosols	Forbidden (Forbidden)	Forbidden (Forbidden)
		8 I or II	Aerosols	Forbidden (Forbidden)	Forbidden (Forbidden)
		6.1 III	Aerosols	75 kg	150 kg
		8 III	Aerosols	75 kg	150 kg
DIVISION 2.3 - TOXIC GASES					
2.3		2.1		Forbidden *(Note 3)*	Forbidden *(Note 3)*
		5.1		Forbidden *(Note 3)*	Forbidden *(Note 3)*
		8		Forbidden *(Note 3)*	Forbidden *(Note 3)*
CLASS 3 - FLAMMABLE LIQUID					
3	I	4.3	Liquid	Forbidden (Individual consideration)	Forbidden (Individual consideration)
		5.1	Liquid	Forbidden (Individual consideration)	Forbidden (Individual consideration)
		6.1	Liquid	Forbidden (Forbidden)	30 L
		8	Liquid	0.5 L	2.5 L
	II	4.3	Liquid	Forbidden (Individual consideration)	Forbidden (Individual consideration)
		5.1	Liquid	Forbidden (Individual consideration)	Forbidden (Individual consideration)
		6.1	Liquid	1 L	60 L
		8	Liquid	1 L	5 L

TABLE 2 - *(Continued)*

Primary hazard		*Subsidiary risk(s)*	*Physical state*	*Passenger aircraft*	*Cargo aircraft*
Class/Div	*PG*	*(Note 1)*			
1	*2*	*3*	*4*	*5*	*6*
CLASS - FLAMMABLE LIQUID (Continued)					
3	III	4.3	Liquid	Forbidden (Individual consideration)	Forbidden (Individual consideration)
		5.1	Liquid	Forbidden (Individual consideration)	Forbidden (Individual consideration)
		6.1	Liquid	60 L	220 L
		8	Liquid	5 L	60 L
DIVISION 4.1 - FLAMMABLE SOLID					
4.1	I	4.2	Desensitized explosive	Forbidden (Individual consideration)	Forbidden (Individual consideration)
		4.3	Desensitized explosive	Forbidden (Individual consideration)	Forbidden (Individual consideration)
		5.1	Desensitized explosive	Forbidden (Individual consideration)	Forbidden (Individual consideration)
		6.1	Desensitized explosive	Forbidden (Individual consideration)	Forbidden (Individual consideration)
		8	Desensitized explosive	Forbidden (Individual consideration)	Forbidden (Individual consideration)
	II	5.1	Solid	Forbidden (Forbidden)	Forbidden (Forbidden)
		6.1	Solid	15 kg	50 kg
		8	Solid	15 kg	50 kg
	III	5.1	Solid	Forbidden (Forbidden)	Forbidden (Forbidden)
		6.1	Solid	25 kg	100 kg
		8	Solid	25 kg	100 kg
DIVISION 4.2 - SPONTANEOUSLY COMBUSTIBLE SUBSTANCES					
4.2	I	3	Pyrophoric liquid	Forbidden (Forbidden)	Forbidden (Forbidden)
		4.3	Pyrophoric liquid	Forbidden (Forbidden)	Forbidden (Forbidden)
		5.1	Pyrophoric liquid	Forbidden (Forbidden)	Forbidden (Forbidden)
		6.1	Pyrophoric liquid	Forbidden (Forbidden)	Forbidden (Forbidden)
		8	Pyrophoric liquid	Forbidden (Forbidden)	Forbidden (Forbidden)
		3,	Pyrophoric solid	Forbidden (Forbidden)	Forbidden (Forbidden)
		4.3	Pyrophoric solid	Forbidden (Forbidden)	Forbidden (Forbidden)
		5.1	Pyrophoric solid	Forbidden (Forbidden)	Forbidden (Forbidden)
		6.1	Pyrophoric solid	Forbidden (Forbidden)	Forbidden (Forbidden)
		8	Pyrophoric solid	Forbidden (Forbidden)	Forbidden (Forbidden)

TABLE 2 - *(Continued)*

Primary hazard		*Subsidiary risk(s)*	*Physical state*	*Passenger aircraft*	*Cargo aircraft*
Class/Div	*PG*	*(Note 1)*			
1	*2*	*3*	*4*	*5*	*6*
DIVISION 4.2 - SPONTANEOUSLY COMBUSTIBLE SUBSTANCES (Continued)					
4.2	II	3	Liquid	Forbidden (Forbidden)	Forbidden (Forbidden)
		4.3	Liquid	Forbidden (Forbidden)	Forbidden (Forbidden)
		5.1	Liquid	Forbidden (Forbidden)	Forbidden (Forbidden)
		6.1	Liquid	1 L	5 L
		8	Liquid	1 L	5 L
		4.1	Solid	5 kg	15 kg
		5.1	Solid	Forbidden (Forbidden)	Forbidden (Forbidden)
		6.1	Solid	15 kg	50 kg
		8	Solid	15 kg	50 kg
	III	4.3	Liquid	Forbidden (Forbidden)	Forbidden (Forbidden)
		5.1	Liquid	Forbidden (Forbidden)	Forbidden (Forbidden)
		6.1	Liquid	5 L	60 L
		8	Liquid	5 L	60 L
		4.1	Solid	15 kg	50 kg
		4.3	Solid	25 kg	100 kg
		5.1	Solid	Forbidden (Forbidden)	Forbidden (Forbidden)
		6.1	Solid	25 kg	100 kg
		8	Solid	25 kg	100 kg
DIVISION 4.3 - WATER REACTIVE SUBSTANCES					
4.3	I	3	Liquid	Forbidden (Individual consideration)	~~Forbidden (Individual consideration~~ [1 L])
		5.1	Liquid	Forbidden (Individual consideration)	Forbidden (Individual consideration)
		6.1	Liquid	Forbidden (Forbidden)	1 L
		8	Liquid	Forbidden (Forbidden)	1 L
		4.1	Solid	Forbidden (Forbidden)	15 kg
		4.2	Solid	Forbidden (Forbidden)	15 kg
		5.1	Solid	Forbidden (Forbidden)	Forbidden (Forbidden)
		6.1	Solid	Forbidden (Forbidden)	15 kg
		8	Solid	Forbidden (Forbidden)	15 kg

TABLE 2 - *(Continued)*

Primary hazard		*Subsidiary risk(s)*	*Physical state*	*Passenger aircraft*	*Cargo aircraft*
Class/Div	*PG*	*(Note 1)*			
1	*2*	*3*	*4*	*5*	*6*
DIVISION 4.3 - WATER REACTIVE SUBSTANCES (Continued)					
4.3	II	3	Liquid	Forbidden (Individual consideration [1 L])	~~Forbidden (Individual consideration~~ [5 L])
		5.1	Liquid	Forbidden (Individual consideration)	Forbidden (Individual consideration)
		6.1	Liquid	1 L	5 L
		8	Liquid	1 L	5 L
		4.1	Solid	15 kg	50 kg
		4.2	Solid	15 kg	50 kg
		5.1	Solid	Forbidden (Forbidden)	Forbidden (Forbidden)
		6.1	Solid	15 kg	50 kg
		8	Solid	15 kg	50 kg
	III	3	Liquid	Forbidden (Individual consideration [5 L])	~~Forbidden (Individual consideration~~ [60 L])
		5.1	Liquid	Forbidden (Individual consideration)	Forbidden (Individual consideration)
		6.1	Liquid	5 L	60 L
		8	Liquid	5 L	60 L
		4.1	Solid	25 kg	100 kg
		4.2	Solid	25 kg	100 kg
		5.1	Solid	Forbidden (Forbidden)	Forbidden (Forbidden)
		6.1	Solid	25 kg	100 kg
		8	Solid	25 kg	100 kg
DIVISION 5.1 - OXIDIZERS					
5.1	I	3	Liquid	Forbidden (Individual consideration)	Forbidden (Individual consideration)
		4.3	Liquid	Forbidden (Individual consideration)	Forbidden (Individual consideration)
		6.1	Liquid	Forbidden (Forbidden)	2.5 L
		8	Liquid	Forbidden (Forbidden)	2.5 L
		4.1	Solid	Forbidden (Forbidden)	Forbidden (Forbidden)
		4.2	Solid	Forbidden (Forbidden)	Forbidden (Forbidden)
		4.3	Solid	Forbidden (Forbidden)	Forbidden (Forbidden)
		6.1	Solid	1 kg	15 kg
		8	Solid	1 kg	15 kg

TABLE 2- *(Continued)*

Primary hazard		***Subsidiary risk(s)***	***Physical state***	***Passenger aircraft***	***Cargo aircraft***
Class/Div	***PG***	*(Note 1)*			
1	***2***	***3***	***4***	***5***	***6***
DIVISION 5.1 - OXIDIZERS (Continued)					
5.1	II	3	Liquid	Forbidden (Individual consideration)	Forbidden (Individual consideration)
		4.3	Liquid	Forbidden (Individual consideration)	Forbidden (Individual consideration)
		6.1	Liquid	1 L	5 L
		8	Liquid	1 L	5 L
		4.2	Solid	Forbidden (Forbidden)	Forbidden (Forbidden)
		4.3	Solid	Forbidden (Forbidden)	Forbidden (Forbidden)
		6.1	Solid	5 kg	25 kg
		8	Solid	5 kg	25 kg
	III	3	Liquid	Forbidden (Individual consideration)	Forbidden (Individual consideration)
		4.3	Liquid	Forbidden (Individual consideration)	Forbidden (Individual consideration)
		6.1	Liquid	2.5 L	30 L
		8	Liquid	2.5 L	30 L
		6.1	Solid	25 kg	100 kg
		8	Solid	25 kg	100 kg
DIVISION 6.1 - TOXIC SUBSTANCES					
6.1(i)	I	3	Liquid	Forbidden (Forbidden)	Forbidden (Forbidden)
		4.2	Liquid	Forbidden (Forbidden)	Forbidden (Forbidden)
		4.3	Liquid	Forbidden (Forbidden)	Forbidden (Forbidden)
		5.1	Liquid	Forbidden (Forbidden)	Forbidden (Forbidden)
		8	Liquid	Forbidden (Forbidden)	Forbidden (Forbidden)
		4.1	Solid	Forbidden (Forbidden)	15 kg
		4.2	Solid	Forbidden (Forbidden)	15 kg
		4.3	Solid	Forbidden (Forbidden)	15 kg
		5.1	Solid	Forbidden (Forbidden)	15 kg
		8	Solid	Forbidden (Forbidden)	15 kg

TABLE 2 - *(Continued)*

Primary hazard		*Subsidiary risk(s)*	*Physical state*	*Passenger aircraft*	*Cargo aircraft*
Class/Div	*PG*	*(Note 1)*			
1	*2*	*3*	*4*	*5*	*6*
DIVISION 6.1 - TOXIC SUBSTANCES (Continued)					
6.1(d and o)	I	3	Liquid	1 L	30 L
		4.3	Liquid	Forbidden (Forbidden)	1 L
		5.1	Liquid	Forbidden (Forbidden)	2.5 L
		8	Liquid	0.5 L	2.5 L
		4.1	Solid	1 kg	15 kg
		4.2	Solid	5 kg	15 kg
		4.3	Solid	5 kg	15 kg
		5.1	Solid	1 kg	15 kg
		8	Solid	1 kg	25 kg
6.1	II	3	Liquid	5 L	60 L
		4.3	Liquid	1 L	5 L
		5.1	Liquid	1 L	5 L
		8	Liquid	1 L	30 L
		4.1	Solid	15 kg	50 kg
		4.2	Solid	15 kg	50 kg
		4.3	Solid	15 kg	50 kg
		5.1	Solid	5 kg	25 kg
		8	Solid	15 kg	50 kg
6.1	III	3	Liquid	60 L	220 L
CLASS 8 - CORROSIVES SUBSTANCES					
8	I	3	Liquid	0.5 L	2.5 L
		4.2	Liquid	0.5 L	2.5 L
		4.3	Liquid	Forbidden (Forbidden)	1 L
		5.1	Liquid	Forbidden (Forbidden)	2.5 L
		6.1	Liquid	0.5 L	2.5 L
		4.1	Solid	1 kg	25 kg
		4.2	Solid	1 kg	25 kg
		4.3	Solid	1 kg	25 kg
		5.1	Solid	1 kg	~~15~~ 25 kg
		6.1	Solid	1 kg	25 kg

TABLE 2 - *(Continued)*

Primary hazard		*Subsidiary risk(s)*	*Physical state*	*Passenger aircraft*	*Cargo aircraft*
Class/Div	***PG***	*(Note 1)*			
1	***2***	***3***	***4***	***5***	***6***
CLASS 8 - CORROSIVES SUBSTANCES (Continued)					
8	II	3	Liquid	1 L	30 L
		4.2	Liquid	1 L	30 L
		4.3	Liquid	1 L	~~5~~ 30 L
		5.1	Liquid	1 L	30 L
		6.1	Liquid	1 L	30 L
		4.1	Solid	15 kg	50 kg
		4.2	Solid	15 kg	50 kg
		4.3	Solid	15 kg	50 kg
		5.1	Solid	15 kg	50 kg
		6.1	Solid	15 kg	50 kg
	III	6.1	Liquid	5 L	60 L
		6.1	Solid	25 kg	100 kg

Notes for Table 2

1. Subsidiary risk(s) in classes/divisions other than those shown are not possible. When there is more than one subsidiary risk for a particular Class/Division and Packing Group (eg: Class 3 PG II, with subsidiary risks 6.1 and 8) individual consideration needs to be given as to the quantities which would be appropriate or whether a total or partial prohibition is warranted.

2. Does not apply to refrigerated liquefied gases, for which subsidiary risks are inappropriate.

3. The quantity permitted will always be according to Packing Instruction 213 in the Supplement[4].

[4] Comment —Possibly to become PI 200 in the Supplement.

TABLE 3

Maximum Net Quantities Per Package For Dangerous Goods In Limited Quantities

Class/ Division	*Packing group*	*Physical state*	*Inner packaging ~~(Note 1)~~*	*Per package*
1	*2*	*3*	*4*	*5*
CLASS 2 - GASES				
2.1		Aerosols	120 mL *(Note ~~2~~1)*	Gross mass applies only
2.2 *(Note ~~3~~2)*		Aerosols and gases without subsidiary risk	120 mL *(Note ~~2~~1)*	Gross mass applies only
CLASS 3 - FLAMMABLE LIQUID				
3	II	Liquid	500 mL	1 L
	III	Liquid	5 L	10 L
		UN 3316 (Polyester resin kit)	30 mL / 100 g	1 kg
		UN 3473 (Fuel cell cartridges)	2.5 kg	2.5 kg
CLASS 4 - FLAMMABLE SOLIDS AND WATER REACTIVE SUBSTANCES				
4.1	II	Solid, not self-reactive substances	500 g	5 kg
	III	Solid, not self-reactive substances	1 kg	10 kg
4.3	II	Solid	500 g	5 kg
	III	Solid	1 kg	10 kg
CLASS 5 - OXIDIZERS AND ORGANIC PEROXIDES				
5.1	II	Liquid	100 mL	500 mL
		Solid	500 g	2.5 kg
	III	Liquid	500 mL	1 L
		Solid	1 kg	10 kg
5.2 *(Note ~~4~~3)*		Liquid	30 mL	500 mL
		Solid	100 g	1 kg
CLASS 6 - TOXIC SUBSTANCES				
6.1	II	Liquid	100 mL	1 L
		Solid	500 g	1 kg
	III	Liquid	500 mL	2 L
		Solid	1 kg	10 kg
CLASS 8 - CORROSIVES SUBSTANCES				
8	II	Liquid	100 mL	500 mL
		Solid	500 g	5 kg
(Note ~~5~~4)	III	Liquid	500 mL	1 L

(Note ~~6~~5)		Solid	1 kg	5 kg
CLASS 9 - MISCELLANEOUS DANGEROUS GOODS				
9		UN 2071 (Ammonium nitrate fertilizers)	5 kg	Gross mass applies only
		UN 1990 (Benzaldehyde) UN 1941 (Dibromo-difluoromethane) UN 3082 (Environmentally hazardous substance, liquid) UN 3334 (Aviation regulated liquid)	~~1 L (glass & plastic)~~ ~~2 L (metal)~~5 L	Gross mass applies only
		~~UN 3316 (Chemical kit, First aid kit)~~	~~30 mL / 100 g~~	~~1 kg~~
		~~UN 1941 (Dibromo-difluoromethane)~~	~~1 L (glass & plastic)~~ ~~2 L (metal)~~	~~Gross mass applies only~~
		UN 3077 (Environmentally hazardous substance, solid) UN 3335 (Aviation regulated solid)	~~1~~5 kg ~~(except for plastic [IP.2] & metal)~~ ~~2 kg (plastic & metal)~~	Gross mass applies only
		~~UN 3082 (Environmentally hazardous substance, liquid)~~	~~1 L (glass & plastic)~~ ~~2 L (metal)~~	~~Gross mass applies only~~

Notes for Table 3

~~1. The inner packaging limitations do not apply to glass ampoules (IP.8), which are always 0.5 L unless the limitation for inner packaging is for a lesser amount, in which case the quantity permitted in a glass ampoule is the same as for the other inner packaging.~~

~~2~~1. The capacity of an aerosol containing only non-toxic substance(s), when in a metal ~~or plastic~~ receptacle, may be up to 1 L.

~~3~~2. Excludes refrigerated liquefied gases.

~~4~~3. Restricted to those organic peroxides contained in a chemical kit or first aid kit.

~~5~~4. Excludes Batteries, wet filled with acid/alkali (UN 2794, 2795).

~~6~~5. Excludes Batteries, dry, containing potassium hydroxide solid (UN 3028).

2.4. Criteria for adding organic peroxides and self-reactive substances to the lists of dangerous goods

2.4.1 The criteria used when adding organic peroxides or self-reactive substances to the lists of dangerous goods are as follows:

(a) Organic peroxides and self-reactive substances are either permitted on both passenger and cargo aircraft or forbidden on both types (ie: there are no organic peroxides or self-reactive substances which should be forbidden on passenger aircraft but permitted on cargo aircraft in normal circumstances).

(b) The organic peroxides and self-reactive substances which are forbidden are:

(i) those requiring temperature control;
(ii) those assigned Special Provision A 215 (~~ie~~e.g.: ~~Organic peroxide/~~Self-reactive [etc], type B).

(c) Packagings must conform to the applicable OP method shown in UN Packing Instruction 520; but even if the UN OP method permits other types of packagings, those used are restricted as follows:

(i) packagings are only combination packagings (ie: single packagings are not used) ;
(ii) inner packagings are only of plastic ~~(IP.2 and/or IP.5)~~;
(iii) metal outer packagings are not used; and outer packagings are restricted to boxes of fibreboard, plywood, solid plastic or wood, or drums of fibre.

(d) Even if the UN OP method permits larger quantities, the quantities in inner packagings are restricted to:

Type	*Physical state*	*Passenger aircraft*	*Cargo aircraft*
C and D	Liquid	0.5 L	1 L
	Solid	0.5 kg	1 kg
E and F	Liquid	1 L	2.5 L
	Solid	1 kg	2.5 kg

(e) Even if the UN OP method permits larger quantities, the maximum net quantities per package are restricted to:

Type	*Physical state*	*Passenger aircraft*	*Cargo aircraft*
C and D	Liquid	5 L	10 L
	Solid	5 kg	10 kg
E and F	Liquid	10 L	25 L
	Solid	10 kg	25 kg

TABLE 4

Packing Instruction Assignment

CLASS / AIRCRAFT TYPE	PACKING GROUP	SUBRISK	IP TYPE	INNER QTY	QTY / PACKAGE	OTHER CONSIDERATIONS
CLASS 3	**PASSENGER**					
350	I	8	Glass Plastic Metal	0.5 L F 0.5 L	0.5 L	
351	I	NONE	Glass Plastic Metal	0.5 L F 1.0 L	1.0 L	
352	II	8, 6.1, 6.1 + 8, AND NONE	Glass Plastic Metal	1.0 L 1.0 L 1.0 L	1.0 L	
353	II	NONE	Glass Plastic Metal	1.0 L 5.0 L 5.0 L	5.0 L	
354	III	8	Glass Plastic Metal	2.5 L 5.0 L 5.0 L	5.0 L	
355	III	6.1 AND NONE	Glass Plastic Metal	2.5 L 10.0 L 10.0 L	60.0 L	
LTD QTY						
Y340	II	8	Glass Plastic Metal	0.5 L 0.5 L 0.5 L	0.5 L	
Y341	II	6.1 AND NONE	Glass Plastic Metal	0.5 L 0.5 L 0.5 L	1.0 L	
Y342	III	8	Glass Plastic Metal	1.0 L 1.0 L 1.0 L	1.0 L	
Y343	III	6.1	Glass Plastic Metal	1.0 L 1.0 L 1.0 L	2.0 L	
Y344	III	NONE	Glass Plastic Metal	2.5 L 10.0 L 10.0 L	10.0 L	
CARGO						
360	I	8, 6.1 + 8 AND NONE	Glass Plastic Metal	1.0 L F 2.5 L	2.5 L	
361	I	6.1 AND NONE	Glass Plastic Metal	1.0 L F 5.0 L	30.0 L	
362	II	8	Glass Plastic Metal	1.0 L 1.0 L 1.0 L	5.0 L	
363	II	8, 6.1 + 8,	Glass	2.5 L		

			Plastic	2.5 L	5.0 L	
			Metal	5.0 L		
364	II	6.1 AND NONE	Glass	2.5 L		
			Plastic	5.0 L	60.0 L	
			Metal	10.0 L		
365	III	8	Glass	5.0 L		
			Plastic	10.0 L	60.0 L	
			Metal	25.0 L		
366	III	6.1 AND NONE	Glass	5.0 L		
			Plastic	10.0 L	220.0 L	
			Metal	25.0 L		
SPECIALS						
370					5 kg	Polyester resin kits
Y370					1 kg	Polyester resin kits
371			Glass	1.0 L	5.0 L Pax / 60.0L CAO	UN 1204
			Plastic	1.0 L		
			Metal	1.0 L		
			Metal	1.0 L	5.0 L CAO	UN 3064
372					42.0 L CAO	UN 3165
373			Glass	5.0 L		UN 1228 Mercaptans, flammable, toxic
	II	6.1	Plastic	5.0 L	60.0 L CAO	
			Metal	5.0 L		
			Glass	1.0 L		
	III	6.1	Plastic	1.0 L	5.0 L pax	
			Metal	1.0 L		
			Glass	5.0 L		
	III	6.1	Plastic	5.0 L	220.0 L CAO	
			Metal	5.0 L		
			Glass	0.5 L		UN 1228 Mercaptans, flammable, toxic
Y373	III	6.1	Plastic	0.5 L	1.0 L	
			Metal	0.5 L		
374					5.0 kg pax 50.0 kg CAO	Fuel cell cartridges
Y374					2.5 kg	Fuel cell cartridges
375					5.0 kg pax 50.0 kg CAO	Fuel cell cartridges contained in equipment
376					5.0 kg pax 50.0 kg CAO	Fuel cell cartridges packed with equipment
377	II		Glass	1 L pax & CAO	1 L pax	Chlorosilanes
			Plastic	Forbidden		
			Metal	1 L pax/ 5 L CAO	5 L CAO	

CLASS 4	**DIVISION 4.1**
PASSENGER SOLID	

445	II	6.1, 8, AND NONE	Glass	1.0 kg	15.0 kg	
			Plastic	2.5 kg		
			Metal	2.5 kg		
			Plastic bag	1.0 kg		
446	III	6.1, 8, AND NONE	Glass	1.0 kg	25.0 kg	
			Plastic	2.5 kg		
			Metal	2.5 kg		
			Plastic bag	1.0 kg		
LTD QTY						
Y440	II	6.1	Glass	0.5 kg	1.0 kg	
			Plastic	0.5 kg		
			Metal	0.5 kg		
			Plastic bag	0.5 kg		
Y441	II	8 AND NONE	Glass	0.5 kg	5.0 kg	
			Plastic	0.5 kg		
			Metal	0.5 kg		
			Plastic bag	0.5 kg		
Y442	III	8 AND NONE	Glass	1.0 kg	5.0 kg	
			Plastic	1.0 kg		
			Metal	1.0 kg		
			Plastic bag	1.0 kg		
Y443	III	6.1 AND NONE	Glass	1.0 kg	10.0 kg	
			Plastic	1.0 kg		
			Metal	1.0 kg		
			Plastic bag	1.0 kg		
CARGO SOLID						
448	II	6.1, 8, AND NONE	Glass	2.5 kg	50.0 kg	
			Plastic	5.0 kg		
			Metal	5.0 kg		
			Plastic bag	2.5 kg		
449	III	6.1, 8, AND NONE	Glass	5.0 kg	100.0 kg	
			Plastic	10.0 kg		
			Metal	10.0 kg		
			Plastic bag	5.0 kg		
SPECIALS						
451	I	Wetted explosives	Glass	0.5 kg	0.5 kg pax & CAO	UN 1354, UN 1355, UN 1356, UN 3364, UN 3365, UN 3366, UN 3367, UN 3368, UN 3369, UN 3370
			Plastic	0.5 kg		
			Metal	0.5 kg		
			Plastic bag	0.5 kg		

		Glass	0.5 kg	1.0 kg pax	UN 1336, UN 1337, UN 1357
		Plastic	0.5 kg		
		Metal	0.5 kg	15.0 kg CAO	
		Plastic bag	0.5 kg		
		Glass	0.5 kg	0.5 kg pax & CAO	UN 1310
		Plastic	0.5 kg		
		Metal	0.5 kg		
		Plastic bag	0.5 kg		
		Glass	0.5 kg	1.0 kg pax	UN 1320, UN 1321, UN 1322, UN 1344, UN 1348, UN 1517, UN 3317
		Plastic	0.5 kg		
		Metal	0.5 kg	15.0 kg CAO	
		Plastic bag	0.5 kg		
		Glass	0.25 kg	0.5 kg CAO	UN 1571, UN 2852
		Glass	1.0 kg	15.0 kg	UN 2555
		Plastic	1.0 kg		
		Metal	1.0 kg		
		Plastic bag	1.0 kg		
452 pax	II	Glass	1.0 kg	1.0 kg	UN 2556
		Plastic	1.0 kg		
		Metal	1.0 kg		
		Plastic bag	1.0 kg		
		Glass	1.0 kg	1.0 kg	UN 2557
		Plastic	1.0 kg		
		Metal	1.0 kg		
		Plastic bag	1.0 kg		
		Glass	1.0 kg	50.0 kg	UN 2555
		Plastic	1.0 kg		
		Metal	1.0 kg		
		Plastic bag	1.0 kg		
453 CAO	II	Glass	1.0 kg	15.0 kg	UN 2556
		Plastic	1.0 kg		
		Metal	1.0 kg		
		Plastic bag	1.0 kg		
		Glass	1.0 kg	15.0 kg	UN 2557
		Plastic	1.0 kg		
		Metal	1.0 kg		
		Plastic bag	1.0 kg		
454	III			25 kg pax 100 kg CAO	UN 1324
Y454	III			10 kg	UN 1324
455	III			25 kg pax 100 kg CAO	UN 1944, UN 1945
Y455	III			10 kg	UN 1944, UN 1945
456	III			25 kg pax 100 kg CAO	UN 2000

457	III		Glass Plastic Plastic bag	0.5 kg 1.0 kg 1.0 kg	25 kg pax / 50 kg CAO	UN 3241
Y457	III		Glass Plastic Plastic bag	0.5 kg 0.5 kg 0.5 kg	5 kg	UN 3241
458	II				1.0 kg pax 15 kg CAO	UN 3270
Y458	II				1.0 kg	UN 3270
459		Self-reactive substances	Plastic Plastic	0.5 L 1.0 L	5.0 L pax 10.0 L CAO	UN 3223, UN 3225
			Plastic Plastic	1.0 L 2.5 L	10.0 L pax 25.0 L CAO	UN 3227, UN 3229
			Plastic Plastic	0.5 kg 1.0 kg	5.0 kg pax 10.0 kg CAO	UN 3224, UN 3226
			Plastic Plastic	1.0 kg 2.5 kg	10.0 kg pax 25.0 kg CAO	UN 3228, UN 3230
4.2						
PASSENGER LIQUID						
462	II	6.1, 8, AND NONE	Glass Plastic Metal	1.0 L 1.0 L 1.0 L	1.0 L	self-heating
463	III	6.1, 8, AND NONE	Glass Plastic Metal	2.5 L 2.5 L 5.0 L	5.0 L	self-heating
CARGO LIQUID						
464	II	6.1, 8, AND NONE	Glass Plastic Metal	2.5 L 2.5 L 5.0 L	5.0 L	self-heating
465	III	6.1, 8, AND NONE	Glass Plastic Metal	2.5 L 5.0 L 10.0 L	60.0 L	self-heating
PASSENGER SOLID						
466	II	6.1, 8	Glass Plastic Metal	1.0 kg 1.0 kg 1.0 kg	15.0 kg	self-heating
467	II	NONE	Glass Plastic Metal Plastic bag	1.0 kg 2.5 kg 2.5 kg 1.0 kg	15.0 kg	self-heating
468	III	4.3, 6.1, 8	Glass Plastic Metal	2.5 kg 2.5 kg 5.0 kg	25.0 kg	self-heating
469	III	NONE	Glass Plastic Metal Plastic bag	5.0 kg 10.0 kg 10.0 kg 5.0 kg	25.0 kg	self-heating

CARGO SOLID						
470	II	6.1, 8, AND NONE	Glass	2.5 kg	50.0 kg	self-heating
			Plastic	5.0 kg		
			Metal	5.0 kg		
			Plastic bag	2.5 kg		
471	III	4.3, 6.1, 8, AND NONE	Glass	5.0 kg	100.0 kg	self-heating
			Plastic	10.0 kg		
			Metal	10.0 kg		
			Plastic bag	5.0 kg		
SPECIALS						
472	III			0.1 kg	0.5 kg	UN 1362
473	II		Glass	1.0 kg	50 kg CAO	UN 1378
			Metal	1.0 kg		
	II		Glass	1.0 kg	50 kg CAO	UN 2881
			Metal	1.0 kg		
	III		Glass	1.0 kg	25 kg pax	
			Metal	1.0 kg		
			Glass	2.5 kg	100 kg CAO	
			Metal	5.0 kg		
4.3						
PASSENGER LIQUID						
478	II	NONE	Glass	1.0 L	1.0 L	water reactive
			Plastic	1.0 L		
			Metal	1.0 L		
479	III	6.1, 8, AND NONE	Glass	2.5 L	5.0 L	water reactive
			Plastic	2.5 L		
			Metal	5.0 L		
CARGO LIQUID						
480	I	3, 6.1, 3 + 8, NONE	Glass	1.0 L	1.0 L	water reactive
			Plastic	F		
			Metal	1.0 L		
481	II	6.1, 8, AND NONE	Glass	2.5 L	5.0 L	water reactive
			Plastic	2.5 L		
			Metal	5.0 L		
482	III	6.1, 8, AND NONE	Glass	5.0 L	60.0 L	water reactive
			Plastic	5.0 L		
			Metal	10.0 L		
PASENGER SOLID						
483	II	4.1, 4.2, 6.1, 8 AND NONE	Glass	1.0 kg	15.0 kg	water reactive
			Plastic	1.0 kg		
			Metal	1.0 kg		
484	II	NONE	Glass	1.0 kg	15.0 kg	water reactive
			Plastic	2.5 kg		
			Metal	2.5 kg		
			Plastic bag	1.0 kg		
485	III	4.2, 6.1 AND NONE	Glass	2.5 kg	25.0 kg	water reactive and self heating
			Plastic	2.5 kg		
			Metal	5.0 kg		

486	III	4.1, 4.2, 6.1, 8 AND NONE	Glass Plastic Metal Plastic bag	5.0 kg 10.0 kg 10.0 kg 5.0 kg	25.0 kg	water reactive and self heating
LTD QTY SOLID						
Y474	II	6.1	Glass Plastic Metal Plastic bag	0.5 kg 0.5 kg 0.5 kg 0.5 kg	1.0 kg	water reactive
Y475	II	4.1, 8 AND NONE	Glass Plastic Metal Plastic bag	0.5 kg 0.5 kg 0.5 kg 0.5 kg	5.0 kg	water reactive
Y476	III	4.1, 8 AND NONE	Glass Plastic Metal Plastic bag	1.0 kg 1.0 kg 1.0 kg 1.0 kg	5.0 kg	water reactive and self heating
Y477	III	6.1 AND NONE	Glass Plastic Metal Plastic bag	1.0 kg 1.0 kg 1.0 kg 1.0 kg	10.0 kg	water reactive and self heating
CARGO SOLID						
487	I	4.2, 6.1 AND NONE	Glass Plastic Metal	1.0 kg 1.0 kg 1.0 kg	15.0 kg	water reactive and self heating
488	I	4.1, 4.2, 6.1, 8 AND NONE	Glass Plastic Metal Plastic bag	1.0 kg 2.5 kg 2.5 kg 2.5 kg	15.0 kg	water reactive and self heating
489	II	4.1, 4.2 AND NONE	Glass Plastic Metal	2.5 kg 2.5 kg 5.0 kg	50.0 kg	water reactive and self heating
490	II	4.1, 4.2, 6.1, 8 AND NONE	Glass Plastic Metal Plastic bag	2.5 kg 5.0 kg 5.0 kg 2.5 kg	50.0 kg	water reactive and self heating
491	III	4.1, 4.2, 6.1, 8 AND NONE	Glass Plastic Metal Plastic bag	5.0 kg 10.0 kg 10.0 kg 5.0 kg	100.0 kg	water reactive and self heating
SPECIALS						
492	II				F pax No limit CAO	UN 3292 batteries
					25 kg pax No limit CAO	UN 3292 cells
493 pax	II	3	Glass Cylinders	1.0 L 1.0 L	1.0 L	UN 3399

	III		Glass Cylinders	5.0 L 5.0 L	5.0 L	
494 CAO	I	3	Glass Cylinders	1.0 L 1.0 L	1.0 L	UN 3399
	II		Glass Cylinders	2.5 L 2.5 L	5.0 L	
	III		Glass Cylinders	5.0 L 5.0 L	60.0 L	
495					5.0 kg pax 50.0 kg CAO	Fuel cell cartridges
Y495					2.5 kg	Fuel cell cartridges
496					5.0 kg pax 50.0 kg CAO	Fuel cell cartridges contained in equipment
497					5.0 kg pax 50.0 kg CAO	Fuel cell cartridges packed with equipment
499						UN 3319
CLASS 5 **DIVISION 5.1** **PASSENGER LIQUID**						
550	II	6.1, 8 AND NONE	Glass Plastic Metal	1.0 L 1.0 L 1.0 L	1.0 L	
551	III	6.1, 8 AND NONE	Glass Plastic Metal	2.5 L 2.5 L 2.5 L	2.5 L	
LTD QTY LIQUID						
Y540	II	6.1, 8 AND NONE	Glass Plastic Metal	0.1 L 0.1 L 0.1 L	0.5 L	
Y541	III	6.1, 8 AND NONE	Glass Plastic Metal	0.5 L 0.5 L 0.5 L	1.0 L	
CARGO LIQUID						
553	I	6.1, 8 AND NONE	Glass Plastic Metal	1.0 L 1.0 L 1.0 L	2.5 L	
554	II	6.1, 8 AND NONE	Glass Plastic Metal	2.5 L 2.5 L 2.5 L	5.0 L	
555	III	6.1, 8 AND NONE	Glass Plastic Metal	5.0 L 5.0 L 5.0 L	30.0 L	
PASSENGER SOLID						
557	I	6.1, 8 AND NONE	Glass Plastic Metal	1.0 kg 1.0 kg 1.0 kg	1.0 kg	
558	II	6.1, 8 AND NONE	Glass Plastic	1.0 kg 1.0 kg	5.0 kg	

			Metal	1.0 kg	
			Paper bag	1.0 kg	
			Plastic bag	1.0 kg	
			Fibre	1.0 kg	
559	III	6.1, 8 AND NONE	Glass	2.5 kg	25.0 kg
			Plastic	2.5 kg	
			Metal	2.5 kg	
			Paper bag	2.5 kg	
			Plastic bag	2.5 kg	
			Fibre	2.5 kg	
LTD QTY SOLID					
Y543	II	6.1	Glass	0.5 kg	1.0 kg
			Plastic	0.5 kg	
			Metal	0.5 kg	
			Paper bag	0.5 kg	
			Plastic bag	0.5 kg	
			Fibre	0.5 kg	
Y544	II	8 AND NONE	Glass	0.5 kg	2.5 kg
			Plastic	0.5 kg	
			Metal	0.5 kg	
			Paper bag	0.5 kg	
			Plastic bag	0.5 kg	
			Fibre	0.5 kg	
Y545	III	8	Glass	1.0 kg	5.0 kg
			Plastic	1.0 kg	
			Metal	1.0 kg	
			Paper bag	1.0 kg	
			Plastic bag	1.0 kg	
			Fibre	1.0 kg	
Y546	III	6.1 AND NONE	Glass	1.0 kg	10.0 kg
			Plastic	1.0 kg	
			Metal	1.0 kg	
			Paper bag	1.0 kg	
			Plastic bag	1.0 kg	
			Fibre	1.0 kg	
CARGO SOLID					
561	I	6.1, 8 AND NONE	Glass	1.0 kg	15.0 kg
			Plastic	1.0 kg	
			Metal	1.0 kg	
562	II	6.1, 8 AND NONE	Glass	2.5 kg	25.0 kg
			Plastic	2.5 kg	
			Metal	5.0 kg	
			Paper bag	2.5 kg	
			Plastic bag	2.5 kg	
			Fibre	2.5 kg	
563	III	6.1, 8 AND NONE	Glass	5.0 kg	100.0 kg
			Plastic	5.0 kg	
			Metal	5.0 kg	

			Paper bag	5.0 kg		
			Plastic bag	5.0 kg		
			Fibre	5.0 kg		
SPECIALS						
565	II				25 kg	UN 3356 CAO
DIVISION 5.2						
570		Organic peroxides	Plastic	0.5 L	5.0 L pax	UN 3103, UN 3105
			Plastic	1.0 L	10.0 L CAO	
			Plastic	1.0 L	10.0 L pax	UN 3107, UN 3109
			Plastic	2.5 L	25.0 L CAO	
			Plastic	0.5 kg	5.0 kg pax	UN 3104, UN 3106
			Plastic bag	0.5 kg		
			Plastic	1.0 kg	10.0 kg CAO	
			Plastic bag	1.0 kg		
			Plastic	1.0 kg	10.0 kg pax	UN 3108, UN 3110
			Plastic bag	1.0 kg		
			Plastic	2.5 kg	25.0 kg CAO	
			Plastic bag	2.5 kg		
DIVISION 6.1						
PASSENGER LIQUID						
651	I	8	Glass	0.5 L	0.5 L	
			Plastic	0.5 L		
			Metal	0.5 L		
652	I	3 AND NONE	Glass	0.5 L	1.0 L	
			Plastic	0.5 L		
			Metal	1.0 L		
653	II	4.3, 5.1, 8 AND 3 + 8	Glass	1.0 L	1.0 L	
			Plastic	1.0 L		
			Metal	1.0 L		
654	II	3 AND NONE	Glass	1.0 L	5.0 L	
			Plastic	1.0 L		
			Metal	2.5 L		
655	III	3 AND NONE	Glass	2.5 L	60.0 L	
			Plastic	2.5 L		
			Metal	5.0 L		
LTD QTY LIQUID						
Y640	II	8 AND 3 + 8	Glass	0.1 L	0.5 L	
			Plastic	0.1 L		
			Metal	0.1 L		
Y641	II	3 AND NONE	Glass	0.1 L	1.0 L	
			Plastic	0.1 L		
			Metal	0.1 L		
Y642	III	3 AND NONE	Glass	0.5 L	2.0 L	
			Plastic	0.5 L		
			Metal	0.5 L		
CARGO LIQUID						
657	I	5.1 AND 8	Glass	1.0 L	2.5 L	
			Plastic	1.0 L		

			Metal	2.5 L	
658	I	3 AND NONE	Glass	1.0 L	30.0 L
			Plastic	1.0 L	
			Metal	2.5 L	
659	II	5.1, 4.3 AND NONE	Glass	1.0 L	5.0 L
			Plastic	1.0 L	
			Metal	2.5 L	
660	II	8 AND 3 + 8	Glass	1.0 L	30.0 L
			Plastic	1.0 L	
			Metal	2.5 L	
661	II	3 AND NONE	Glass	1.0 L	60.0 L
			Plastic	1.0 L	
			Metal	2.5 L	
662	II	3 AND NONE	Glass	2.5 L	60.0 L
			Plastic	2.5 L	
			Metal	5.0 L	
663	III	3 AND NONE	Glass	5.0 L	220.0 L
			Plastic	5.0 L	
			Metal	10.0 L	
PASSENGER SOLID					
665	I	4.1, 5.1, 8 AND NONE	Glass	0.5 kg	1.0 kg
			Plastic	1.0 kg	
			Metal	1.0 kg	
666	I	NONE	Glass	0.5 kg	5.0 kg
			Plastic	1.0 kg	
			Metal	1.0 kg	
667	II	5.1	Glass	1.0 kg	5.0 kg
			Plastic	2.5 kg	
			Metal	2.5 kg	
			Paper bag	1.0 kg	
			Plastic bag	1.0 kg	
			Fibre	1.0 kg	
668	II	4.1, 4.2, 4.3 AND 8	Glass	1.0 kg	15.0 kg
			Plastic	2.5 kg	
			Metal	2.5 kg	
			Paper bag	1.0 kg	
			Plastic bag	1.0 kg	
			Fibre	1.0 kg	
669	II	NONE	Glass	1.0 kg	25.0 kg
			Plastic	2.5 kg	
			Metal	2.5 kg	
			Paper bag	1.0 kg	
			Plastic bag	1.0 kg	
			Fibre	1.0 kg	
670	III	NONE	Glass	5.0 kg	100.0 kg
			Plastic	10.0 kg	
			Metal	10.0 kg	
			Paper bag	5.0 kg	
			Plastic bag	5.0 kg	
			Fibre	5.0 kg	

LTD QTY SOLID					
Y644	II	4.1, 4.3, 5.1 AND 8	Glass Plastic Metal Paper bag Plastic bag Fibre	0.5 kg 0.5 kg 0.5 kg 0.5 kg 0.5 kg 0.5 kg	1.0 kg
Y645	III	NONE	Glass Plastic Metal Paper bag Plastic bag Fibre	1.0 kg 1.0 kg 1.0 kg 1.0 kg 1.0 kg 1.0 kg	10.0 kg
CARGO SOLID					
672	I	4.1, 5.1, 8 AND NONE	Glass Plastic Metal Paper bag Plastic bag Fibre	1.0 kg 2.5 kg 2.5 kg 1.0 kg 1.0 kg 1.0 kg	15.0 kg
673	I	NONE	Glass Plastic Metal Paper bag Plastic bag Fibre	1.0 kg 2.5 kg 2.5 kg 1.0 kg 1.0 kg 1.0 kg	50.0 kg
674	II	5.1 AND NONE	Glass Plastic Metal Paper bag Plastic bag Fibre	2.5 kg 5.0 kg 5.0 kg 2.5 kg 2.5 kg 2.5 kg	25.0 kg
675	II	4.1, 4.2, 4.3 AND 8	Glass Plastic Metal Paper bag Plastic bag Fibre	2.5 kg 5.0 kg 5.0 kg 2.5 kg 2.5 kg 2.5 kg	50.0 kg
676	II	NONE	Glass Plastic Metal Paper bag Plastic bag Fibre	2.5 kg 5.0 kg 5.0 kg 2.5 kg 2.5 kg 2.5 kg	100.0 kg
677	III	NONE	Glass Plastic Metal Paper bag Plastic	5.0 kg 10.0 kg 10.0 kg 5.0 kg 5.0 kg	200.0 kg

			bag			
			Fibre	5.0 kg		
SPECIALS						
679 CAO	II	4.1 8			50.0 kg 75.0 kg 50.0 kg	UN 1700 UN 2016 UN 2017
680	III		Glass Plastic Metal	1.0 L 1.0 L 2.5 L	60.0 L pax	UN 1888
			Glass Plastic Metal	2.5 L 2.5 L 5.0 L	220.0 L CAO	
Y680	III		Glass Plastic Metal	0.1 L 0.1 L 0.1 L	2.0 L	
681	II		Glass Plastic Metal	1 L pax & CAO Forbidden 1 L pax/ 5 L CAO	1 L pax 30 L CAO	Chlorosilanes
699	I					UN 3123 & UN 3125
CLASS 8						
PASSENGER LIQUID						
850	I	3, 6.1 AND NONE	Glass Plastic Metal	0.5 L 0.5 L 0.5 L	0.5 L	
851	II	3, 3 + 6.1, 4.2, 4.3, 5.1, 6.1 AND NONE	Glass Plastic Metal	1.0 L 1.0 L 1.0 L	1.0 L	
852	III	6.1 AND NONE	Glass Plastic Metal	2.5 L 2.5 L 5.0 L	5.0 L	
LTD QTY LIQUID						
Y840	II	3, 3 + 6.1, 5.1, 6.1 AND NONE	Glass Plastic Metal	0.1 L 0.1 L 0.1 L	0.5 L	
Y841	III	6.1 AND NONE	Glass Plastic Metal	0.5 L 0.5 L 0.5 L	1.0 L	
CARGO LIQUID						
854	I	3, 3 + 6.1, 5.1, 6.1 AND NONE	Glass Plastic Metal	1.0 L 1.0 L 1.0 L	2.5 L	
855	II	3, 3 + 6.1, 4.2, 4.3, 5.1, 6.1 AND NONE	Glass Plastic Metal	2.5 L 2.5 L 2.5 L	30.0 L	
856	III	6.1 AND NONE	Glass Plastic Metal	5.0 L 5.0 L 10.0 L	60.0 L	
PASSENGER SOLID						

858	I	4.1, 5.1, 6.1 AND NONE	Glass Plastic Metal	0.5 kg 0.5 kg 0.5 kg	1.0 kg	
859	II	4.1, 4.2, 4.3, 5.1, 6.1 AND NONE	Glass Plastic Metal Plastic bag	1.0 kg 2.5 kg 2.5 kg 1.0 kg	15.0 kg	
860	III	6.1 AND NONE	Glass Plastic Metal Plastic bag	2.5 kg 2.5 kg 5.0 kg 2.5 kg	25.0 kg	
LTD QTY SOLID						
Y843	II	NONE	Glass Plastic Metal Plastic bag	0.5 kg 0.5 kg 0.5 kg 0.5 kg	1.0 kg	
Y844	II	4.1, 4.3, 5.1, 6.1 AND NONE	Glass Plastic Metal Plastic bag	0.5 kg 0.5 kg 0.5 kg 0.5 kg	5.0 kg	
Y845	III	6.1 AND NONE	Glass Plastic Metal Plastic bag	1.0 kg 1.0 kg 1.0 kg 1.0 kg	5.0 kg	
CARGO SOLID						
862	I	4.1, 5.1, 6.1 AND NONE	Glass Plastic Metal	1.0 kg 2.5 kg 2.5 kg	25.0 kg	
863	II	4.1, 4.2, 4.3, 5.1, 6.1 AND NONE	Glass Plastic Metal Plastic bag	2.5 kg 5.0 kg 5.0 kg 2.5 kg	50.0 kg	
864	III	6.1 AND NONE	Glass Plastic Metal Plastic bag	5.0 kg 5.0 kg 10.0 kg 5.0 kg	100.0 kg	
SPECIALS						
866	II				50.0 kg CAO	UN 2028
867	III		Plastic	3.5 kg	20 kg	UN 2803
868	III		Glass Plastic	2.5 kg 2.5 kg	35.0 kg	UN 2809
869	III				No limit	UN 2809 in articles
870					30 kg G pax No limit CAO	UN 2794, UN 2795
871					25 kg G pax 230 kgG CAO	UN 3028
872					No limit	UN 2800

873				5.0 kg pax 50.0 kg CAO	Fuel cell cartridges
Y873				2.5 kg	Fuel cell cartridges
874				5.0 kg pax 50.0 kg CAO	Fuel cell cartridges contained in equipment
875				5.0 kg pax 50.0 kg CAO	Fuel cell cartridges packed with equipment
876	II	Glass Plastic Metal	1 L Forbidden 5 L	30 L CAO	Chlorosilanes CAO
CLASS 9					
950				No limit	UN 3166 Flammable liquid powered
951				No limit CAO	UN 3166 Flammable gas powered
952				No limit	UN 3171
953				No limit	UN 2807
954				200 kg	UN 1845
955				No limit	UN 2990, UN 3072
956				200 kg pax 200 kg CAO	UN 1841
				100 kg pax 200 kg CAO	UN 1931, UN 3152, UN 3335, UN 3432
				No limit	UN 2969
				400 kg pax 400 kg CAO	UN 3077
Y956		Glass Plastic Metal Paper bag Plastic bag Fibre	5.0 kg 5.0 kg 5.0 kg 5.0 kg 5.0 kg 5.0 kg	30 kg G	UN 3077 & UN 3335
957				100 kg pax 200 kg CAO	UN 2211, UN 3314
958				200 kg pax 200 kg CAO	UN 2071, UN 2590
Y958				30.0 kg G	UN 2071
959				No limit	UN 3245
960		250 mL / IP 250 g / IP	1.0 L / kit 1.0 kg / kit	10.0 kg	UN 3316
Y960		30 mL / IP 100 g / IP	1.0 L / kit 1.0 kg / kit	1.0 kg	UN 3316
961				25 kg pax 100 kg CAO	UN 3268
962				0.5 L; or 1 kg; or	UN 3363

			0.5 kg gas	
Y963		500 mL / g	30 kg G	ID 8000
964	Glass	10.0 L	100 L pax 220 L CAO	UN 1941, UN 1990, UN 2315, UN 3151, UN 3334
	Plastic	30.0 L		
	Metal	40.0 L	450 L	UN 3082
Y964	Glass	5.0 L	30 kg G	UN 1941, UN 1990, UN 3082, UN 3334
	Plastic	5.0 L		
	Metal	5.0 L		
965			5 kg G pax 35 kg G CAO	UN 3480
966			5 kg G pax 35 kg G CAO	UN 3481 Lithium ion batteries packed with equipment
967			5 kg net of batteries per piece of equipt.	UN 3481 Lithium ion batteries contained in equipment
968			2.5 kg G 35 kg G CAO	UN 3090
969			5 kg G pax 35 kg G CAO	UN 3091 Lithium metal batteries packed with equipment
970			5 kg net of batteries per piece of equipt.	UN 3481 Lithium metal batteries contained in equipment

2.5 Special provisions

2.5.1 The special provisions in the Technical Instructions and Supplement are either the same as the equivalent special provision in the UN Recommendations, or based on it, or ~~be~~ unrelated to the Recommendations and has been developed for specific use in air transport. The special provisions are prefixed by "A", primarily to differentiate them from those shown in the Recommendations. ~~At this time, t~~The special provisions which are the same ~~or based on~~as those in the Recommendations have the UN special provision number shown in parentheses following the number ~~do not have the same number as them, but are~~ allocated ~~a number from the sequences used~~ in the Technical Instructions ~~and Supplement~~.

2.5.2 The sequence of numbering the special provisions is that numbers A1 to A199 are reserved for the Technical Instructions; A200 onwards are used in the Supplement. Where an item of dangerous goods appears in the lists of both the Technical Instructions and the Supplement any special provisions assigned to it have numbers allocated from the sequence in the Technical Instructions (unless there is an additional requirement that applies only to the item as listed in the Supplement) and they are not renumbered from the sequence used in the Supplement. It is where a special provision needs only to be shown in the list in the Supplement that a number in the A200 sequence is allocated. Where a special provision number is cancelled, for whatever reason, it is not reallocated immediately; there is a period of at least 2 years before it is reused.

2.5.3 The following are the lists of the special provisions identifying whether they are the equivalents, or modifications, of special provisions in the UN Recommendations, or have been developed for air transport use only.

A1	Developed for air transport use	A20	UN SP 132 (Modified)
A2	Developed for air transport use	A21	UN SP 240
A3	UN SP 223	A22	UN SP 152
A4	Developed for air transport use	A23	UN SP ~~107~~325
A5	Developed for air transport use	A24	Developed for air transport use
A6	UN SP 43	A25	UN SP 205
A7	~~No UN equivalent~~Not used	A26	UN SP 119
A8	Not used	A27	UN SP 276
A9	Based on UN SPs 145 & 146	A28	UN SP 135
A10	UN SP 39	A29	UN SP 138
A11	UN SP ~~40~~ 305	A30	UN SP 273
A12	UN SP 45	A31	UN SP 141
A13	UN SP 47	A32	~~Not used~~Based on SP 289
A14	~~Developed for air transport use~~Not used	A33	UN SP 103
A15	UN SP 59	A34	UN SP 113
A16	UN SP 62	A35	No UN equivalent
A17	UN SP ~~65~~288	A36	Developed for air transport use
A18	UN SP 66	A37	UN SP 206 (Modified)
A19	UN SP 225	A38	UN SP 207

A39	UN SP 26 (Modified)	A76	~~No~~ UN ~~equivalent~~SP 326
A40	UN SP 28	A77	UN SP 218 (Modified)
A41	Developed for air transport use	A78	UN SP 172 (Modified)
A42	UN SP 249	A79	~~No~~ UN ~~equivalent~~SP 307
A43	UN SP 210	A80	UN SP 220
A44	UN SP 251 (Modified)	A81	Developed for air transport use
A45	~~UN SP 188~~Not used	A82	UN SP 177
A46	UN SP 216 (Modified)	A83	UN SP 208
A47	UN SP 219	A84	UN SP 182
A48	Developed for air transport use	A85	UN SP 183
A49	UN SP 127 ~~(Modified)~~	A86	UN SP 241
A50	UN SP 217 (Modified)	A87	Developed for air transport use
A51	Developed for air transport use	A88	~~No UN equivalent~~UN SP 310 (Modified)
A52	UN SP 228	A89	UN SP 186
A53	UN SP 37	A90	UN SP 193
A54	UN SP 32	A91	UN SP 198
A55	UN SP 142	A92	UN SP 199
A56	UN SP 235 (Modified)	A93	Developed for air transport use
A57	~~UN SP 80~~??	A94	UN SP 239 (Modified)
A58	UN SP 144	A95	UN SP 203
A59	Developed for air transport use	A96	UN SP 196
A60	UN SP 215 (Modified)	A97	UN SP 179 (Modified)
A61	UN SP 168	A98	Developed for air transport use
A62	UN SP 178	A99	~~No UN equivalent~~Developed for air transport use
A63	~~UN SP 282~~Not used	A100	UN SP 243
A64	~~No UN equivalent~~UN SP 306	A101	UN SP 227
A65	UN SP 270	A102	UN SP 244
A66	UN SP 236 (Modified)	A103	Developed for air transport use
A67	UN SP 238 (b)	A104	Developed for air transport use
A68	UN SP 272 (Modified)	A105	UN SP 242
A69	Developed for air transport use	A106	UN SP 250 (Modified)
A70	Developed for air transport use	A107	Developed for air transport use
A71	UN SP 38	A108	Developed for air transport use
A72	UN SP 163	A109	Developed for air transport use
A73	UN SP 237	A110	UN SP 226
A74	UN SP 169	A111	Developed for air transport use
A75	Developed for air transport use	A112	Developed for air transport use

A113	UN SP 279	A151	Developed for air transport use
A114	UN SP 283	A152	Developed for air transport use
A115	UN SP 280	A153	Not used
A116	UN SP 284	A154	Developed for air transport use
A117	Developed for air transport use	A155	UN SP 332
A118	Developed for air transport use	A156	UN SP 333
A119	Developed for air transport use	A157	UN SP 334
A120	Developed for air transport use	A158	UN SP 335
A121	~~Developed for air transport use~~Not used	A159	UN SP 336
A122	Developed for air transport use	A160	UN SP 337
A123	Developed for air transport use	A161	UN SP 338
A124	UN SP 292	A162	UN SP 339
A125	UN SP 293	A163	UN SP 340
A126	Not used	A164	Developed for air transport use
A127	Not used	A165	UN SP 347
A128	UN SP 153	A166	UN SP 343
A129	UN SP 252	A167	UN SP 344
A130	UN SP 290	A168	Not used
A131	UN SP 342	A169	UN SP 349
A132	UN SP 204	A170	UN SP 350
A133	UN SP 311	A171	UN SP 351
A134	UN SP 312	A172	UN SP 352
A135	Not used	A173	UN SP 353
A136	UN SP 314	A174	UN SP 354
A137	UN SP 315	A175	UN SP 355
A138	UN SP 316	A176	UN SP 356
A139	UN SP 317	A177	UN SP 357
A140	UN SP 318	A178	Developed for air transport use
A141	Not used	A179	Developed for air transport use
A142	Not used	A180	Developed for air transport use
A143	UN SP 143	A181	Developed for air transport use
A144	Developed for air transport use	A182	Developed for air transport use
A145	Developed for air transport use	A183	Developed for air transport use
A146	UN SP 328		
A147	Not used		
A148	Not used		
A149	Not used		
A150	Developed for air transport use		

A200	UN SP 133 (Modified)	A221	Not used
A201	Developed for air transport use	A222	UN SP 16
A202	Developed for air transport use	A223	
A203	UN SP 122	A224	Developed for air transport use
A204	UN SP 278	A225	
A205	UN SP 232	A226	
A206	UN SP 224	A227	
A207	UN SP 268 UN SP 268 no longer exists.	A228	
A208	UN SP 15 UN SP 15 no longer exists	A229	
A209	UN SP 18 UN SP 18 no longer exists	A230	
A210	UN SP 131	A231	
A211	UN SP 266	A232	
A212	UN SP 267	A233	
A213	UN SP 105 (Modified)	A234	
A214	UN SP 194	A235	
A215	UN SP 181 (Modified)	A236	
A216	UN SP 36 UN SP 36 no longer exists	A237	
A217	UN SP 271	A238	
A218	Repeat of SP A 68	A239	
A219	UN SP 324~~Not used~~	A240	
A220	Not used	A241	

PART 3 - PACKING, PACKING INSTRUCTIONS AND PACKAGINGS

3.1 Introduction

3.1.1 In general dangerous goods are packed according to the requirements of the UN Recommendations and the IAEA Regulations and the packagings are those which are specified in those documents. However, specialised items may mean the development of packing methods which recognise that for air transport more stringent (or different) requirements are needed.

3.2 Packagings

3.2.1 Dangerous goods are almost always packed in packagings; where there is the ability to carry an item unpackaged this is shown in the ~~P~~packing ~~I~~instruction. Unless there are technical reasons for forbidding a particular packaging, all possible inner, outer and single packagings are shown in the ~~P~~packing ~~I~~instructions.

3.3. Portable tanks

3.3.1 Portable tanks can be used also for dangerous goods in packing groups II and III of Classes 3, 8 and 9 and Divisions 4.1 (other than self-reactive substances), 4.3 (other than liquids), 5.1 (other than liquids) and 6.1. These tanks are restricted to cargo aircraft and need the approval of the appropriate authority of the and of the State of the operator~~origin competent authority approval~~; the complete requirements are currently shown in Part ~~S3~~S4, Chapter 12 of the Supplement.

3.4 Intermediate bulk containers

3.4.1 ~~In principle, the Panel have decided that requirements can be developed for intermediate bulk containers (IBCs), restricting them to some solids in packing group III. Any additional conditions have yet to be determined.~~The use of intermediate bulk containers (IBC) is only only permitted for solid environmentally hazardous substances. In principle there is no reason that other solids in Packing Group III could not also be permitted in IBC, although the Panel has yet to approve this for general use.

3.5 Standard of inner packagings

3.5.1 Generally the UN Recommendations do not make reference to inner packagings and there are no construction standards for them. Inner packaging construction standards for use in air transport have been developed by the Panel over the years and the types of packagings identified are those which experience has shown are used by shippers. With the exception of the need to demonstrate the ability to withstand a pressure differential (see 3.6 below), there are no independent tests applied to inner packagings; the tests are those applicable to the complete package "as prepared for transport".

3.6 Ability of packagings to withstand a pressure differential

3.6.1 Due to the nature of air transport, it is an important requirement that packagings for liquids are able to withstand a reduction in pressure. This applies to any packaging which is intended to contain a liquid and includes the inner packagings as well as single and composite packagings. Packagings must have the ability to withstand a pressure differential of 95 kPa or a pressure related to the vapour pressure, if this is greater; for packing group III liquids in Class 3 and Division 6.1, the pressure differential need only be 75 kPa.

3.7 Requirement for some substances to be in more stringent packagings

3.7.1 Some dangerous goods which are in packing group III are considered to present a particular hazard on an aircraft in that in the event of leakage they can cause irreversible damage to the aluminium structure or react readily with the atmosphere to produce flammable gases or some other uncontrollable event.

3.7.2 Dangerous goods which have the possibility of causing such damage or reaction are, therefore, required to be in packagings which meet at least packing group II standards. In particular, this applies to Class 8 (corrosives) in packing group III, where many of them have corrosivity to metal as their main hazard; and Class 4 (flammable solids, spontaneously combustible substances and water reactive substances) in packing group III, where many of them are extremely reactive with moist air.

3.7.3 There are currently 2 items of dangerous goods which are in packing group III but which are required to be in packing group I packagings. These are Gallium (UN 2803) and Mercury (UN 2809), where their main hazard in the event of leakage is the ability to embrittle or otherwise irreversibly damage aluminium within a few minutes. The standard of packaging reflects the need to ensure adequate containment of these particular items.

3.8 Packing instructions for explosives

3.8.1 The packing instructions for explosives and their numbers are same as those used in the UN Recommendations.

3.9 Limited quantities

3.9.1 The requirements for limited quantities are based on those in the UN Recommendations but there are differences. In the UN Recommendations packages of limited quantities need not be labelled and, in some instances, need not be marked with the proper shipping name and UN number. In the Technical Instructions packages containing limited quantities are not excluded from these requirements; the main relaxation in the Instructions is the ability for the packaging not to be tested and marked as a UN specification packaging, although it needs to meet the construction standards applicable to the type.

3.9.2 The UN Recommendations specify the quantity that can be contained in the inner packaging and the gross mass of the package but do not set limits for maximum net quantities per package. The Technical Instructions include requirements for maximum net quantities per package other than for Classes 2 and 9; except there are maximum net quantities per package for Chemical Kits/First Aid Kits (UN 3316). This is because the quantities specified in the UN Recommendations for inner packagings of limited quantities may sometimes be the same as the maximum net quantity per package specified in the Technical Instructions for the particular item in UN specification packaging (eg: for Acetyl chloride [UN 1717] the UN Recommendations allow 1 L per inner packaging for limited quantities; in the Technical Instructions this is the maximum net quantity per package for UN specification packaging on passenger aircraft). Also the quantities specified for some limited quantities in the Recommendations are considered to be too great for air transport.

3.9.3 The Technical Instructions place additional requirements on dangerous goods in limited quantities because most of them will be carried on passenger aircraft and be stowed so they are inaccessible in flight. The requirements are intended to ensure that in the event of an incident it can be identified that dangerous goods are involved but they ought not to be a major contributing factor to it.

PART 4 - HANDLING

4.1 Operator's responsibilities

4.1.1 Most of the requirements contained in Part ~~5~~ 7 of the Technical Instructions have been developed by the Panel and have no equivalent in the UN Recommendations. Exceptions are: ~~segregation of dangerous goods from incompatible goods and~~ separation of explosives by compatibility group; also the Tables specifying the distances by which radioactive material must be separated from persons are based on criteria laid down by IAEA. The Recommendations make it clear that modes are expected to develop their own requirements concerning handling once the dangerous goods have been delivered to the carrier for transport but do include the need for emergency response information to be available.

4.2 Segregation of dangerous goods

4.2.1 The UN Recommendations contain general information about segregating incompatible dangerous goods; and this includes applying the segregation requirements to subsidiary risks. In the Technical Instructions, this general information has been turned into a Table showing certain classes and divisions which need to be segregated from each other and from other classes/divisions. ~~However, at present the Panel has decided that in air transport subsidiary risks do not need to be taken into account when segregating packages of dangerous goods, since the quantity of material in any one package is not considered to be present a major hazard in the event of leakage such that segregating on subsidiary risk, as well as primary hazard, is warranted.~~

4.3 Segregation of radioactive materials

4.3.1 The IAEA Regulations contain the general requirement for segregating radioactive materials from persons and film; these state the maximum levels of exposure in either annual dose rate or per consignment. Many years ago, these levels were used to develop Tables giving ranges of Transport Indices and distances which identify how far radioactive materials need to be stowed from persons and film. Reviews have been undertaken in several Contracting States over the years to demonstrate that the distances required by the Tables do ensure the necessary level of protection.

PART 5 - SUPPLEMENT

5.1 General

5.1.1 The Supplement contains information primarily of interest to Contracting States and to shippers of dangerous goods which are normally forbidden by the Technical Instructions and can only be carried under an approval or exemption. The Panel took a decision in principle in March 1999 that all of the information relating to the shipping of dangerous goods in particular circumstances (ie: the additional classification criteria, supplementary dangerous goods list, special provisions, packing instructions and other packing information) will be transferred to the main Technical Instructions, so the Supplement will contain stable information applicable only to Contracting States and will not need to be republished every two years. This change will not be implemented until the 2003/2004 edition, due to the amount of work needed to make the changes. Once the change is made, the information for the Supplement would include guidance on providing information for passengers and the reporting of accidents and incidents[5].

5.2. List of dangerous goods

5.2.1 The list of dangerous goods contains all the entries in the list in the Technical Instructions which are shown as being forbidden in normal circumstances, irrespective of whether this is on both passenger and cargo aircraft, or only on passenger aircraft, or only for part of the entry (eg: where there is more than one packing group for an item of dangerous goods and the packing group I entry is forbidden but the other packing groups are permitted).

5.2.2 Where there is additional information for an entry, eg: the packing group or an appropriate packing method, it is shown in the list. For quantity limitations, criteria concerning organic peroxides and self-reactive substances and special provisions see 2.3, 2.4 and 2.5 above.

5.2.3 Where a quantity is shown in brackets in columns 10 or 12 and special provisions A1 or ~~,~~ A2 ~~or A109~~ appear in column 7, it identifies the maximum quantity which qualifies for an approval under those special provisions.

5.2.4 The packing instruction numbers for explosives are shown in brackets in columns 9 - 12.

[5] This needs to be revisited to determine if that is still the Panel's view, or if there is benefit in retaining the separate list, packing instructions for those dangerous goods shown as forbidden in the Technical Instructions.

PART 6 - EMERGENCY RESPONSE GUIDANCE

6.1 Assignment of emergency response drill codes

6.1.1 Drill codes are assigned to the entries for dangerous goods in the *Emergency Response Guidance for Aircraft Incidents Involving Dangerous Goods* on the basis of the following criteria.

(a) Drill Code Number

The drill code number assigned is the number of the UN class into which the substance or article has been placed, except that:

(i) ~~(i)~~ the drill code number 10 is assigned to flammable gases in Division 2.1 and to toxic gases having a subsidiary risk 2.1, with all other gases being assigned the drill code number 2;

~~(i)~~(ii) the drill code number 11 is assigned to infectious substances in Division 6.2;

(ii~~i~~ii) flammable solids (ie: Division 4.1 substances) are assigned the drill code number 3; drill code number 4 being reserved for spontaneously combustible and water-reactive substances (ie: those in Divisions 4.2 and 4.3); and

(ii~~i~~v) articles and substances classified in Division 1.4S are assigned to drill code number 3.

(b) Drill Code Letter

(i) Code letters C, F, P, and X - are assigned to articles and substances required to bear a Corrosive, Flammable, Toxic or Oxidizer subsidiary risk label, respectively.

(Note - the code letter P is also assigned to toxic gases in Division 2.3)

(ii) Code letter E - is assigned to articles and substances to which Special Provision A 215 has been assigned in Table S-2-6 and to desensitised explosives classified in Division 4.1, Packing Group I.

(iii) Code letter H - is assigned to liquids with a high risk of ignition by virtue of having a FP below 0ºC. For "nos" or other generalised entries in Class 3, where a separate line entry is presented for packing groups I and II or for all three packing groups, the drill code letter H is indicated for both PG I and II entries, since even the substances falling into PG II may have flash points below 0ºC. If an "nos" or other generalised entry in Class 3 has only a PG II or III line entry, the H is not indicated for the PG II entry since the flash points would be expected to be relatively high, as evidenced by the absence of a PG I entry.

(Note - the H drill code letter is not assigned to Class 3 entries only. It is also assigned to liquids having a flash point below 0ºC and which are classified in a Class or Division that precedence over Class 3 (eg: a highly ignitable liquid which has a PG I inhalation toxicity is assigned the drill code 6H)

(iv) Code letter M - is assigned to Magnetized materials.

(v) Code letter W - is assigned to any article or substance classified in Division 4.3 or having a subsidiary risk 4.3. Because of the effect of inhalation of a corrosive/toxic gas, it is also assigned to substances which react violently with water to produce corrosive/toxic gases (eg: Phosphorus pentachloride).

(vi) ~~(vi)~~ Code letter S - is assigned to self-reactive and related substances of Division 4.1 and organic peroxides of Division 5.2, which require temperature control in transport; and to solid substances having a subsidiary risk of 4.2; and to explosive articles and substances that are also pyrophoric.

~~(vi)~~(vii) Code letter Y – is assigned to infectious substances in Category A (UN 2841 and UN 2900.

(vi~~i~~i) Code letter A, i and N - are assigned subjectively to articles and substances for which none of the above code letters apply and which exhibit anaesthetic, irritating (tear-producing) or noxious properties, respectively.

(~~viii~~x) Code letter L - is assigned when no other code letter applies to articles and substances having no subsidiary risk and to all articles and substances classified in Division 1.4S.

(Note - the L drill code letter does not necessarily mean that the substance to which the code is assigned is of a low hazard, only that there is little of no risk in addition to that indicated by the basic drill code number. For example, a flammable gas in Division 2.1 would have the drill code 10L assigned. Clearly, such a gas could be very dangerous on an aircraft, but the code letter L only indicates that there is no hazard in addition to that indicated in the Inherent Risk column of Table 4-1 of Doc 9481 for the drill number 10)

6.1.2 Not more than 2 drill code letters are used in the drill code. In order to ensure this, it may be necessary to ignore a lesser risk of a substance having multiple hazards which may, however, require multiple subsidiary risk labels. For example **Chlorosilanes, water reactive, flammable, corrosive, nos** are required to be labelled with a Danger if wet primary hazard label and subsidiary risk labels for Liquid flammable and Corrosive; the drill code assigned, however, is **4FW** rather than **4CFW**.

— END —