



WORKING PAPER

**DANGEROUS GOODS PANEL (DGP)
WORKING GROUP MEETING (DGP-WG/17)**

Montreal, 24 to 28 April 2017

Agenda Item 2: Development of recommendations for amendments to the *Technical Instructions for the Safe Transport of Dangerous Goods by Air (Doc 9284)* for incorporation in the 2019-2020 Edition

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

2.4: Part 4 — Packing Instructions

UN 2590 ASBESTOS CHRYSOTILE

(Presented by B. Firkins)

SUMMARY

There are a number of inconsistencies between the Technical Instructions and the UN recommendations regarding the packing of asbestos.

Packing Instruction 958 applies to both ammonium nitrate based fertilizers and Asbestos, chrysotile.

With regard to Asbestos chrysotile, the Technical instructions has the effect of being both less restrictive and more restrictive than the UN.

This paper proposes to remove Asbestos, chrysotile from Packing Instruction 958 and to create two new packing instructions, which will be more consistent with the UN Recommendations.

Action by the DGP-WG: The DGP is invited to consider and comment upon the text set out in the appendices to this paper.

1. INTRODUCTION

1.1 The UN Model Regulations make provisions for asbestos with Packing Instruction P002. This general purpose packing instruction provides for many solid substances. It also caters for the two general classifications of asbestos, UN 2212 — **Asbestos, amphibole** and UN 2590 — **Asbestos, chrysotile**.

UN No.	Name and description	Class or division	Subsidiary risk	UN packing group	Special provisions	Limited and excepted quantities		Packagings and IBCs		Portable tanks and bulk containers	
						(7a)	(7b)	Packing instruction	Special packing provisions	Instructions	Special provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
-	3.1.2	2.0	2.0	2.0.1.3	3.3	3.4	3.5	4.1.4	4.1.4	4.2.5 / 4.3.2	4.2.5
...											
2212	ASBESTOS, AMPHIBOLE (amosite, tremolite, actinolite, anthophyllite, crocidolite)	9		II	168 174	1 kg	E0	P002 IBC08	PP37 B2,B4	T3	TP33
...											
2590	ASBESTOS, CHRYSOTILE	9		III	168	5 kg	E1	P002 IBC08	PP37 B2,B3	T1	TP33
...											

1.2 Packing Instruction 958 in the Technical Instructions applies to UN 2590 — **Asbestos, chrysotile** (as well as UN 2071 — **Ammonium nitrate based fertilizer**) and permits the use of single packagings, including bags and jerricans, on passenger and cargo aircraft.

1.3 Combination packagings are not included under Packing Instruction 958 for air transport. However, combination packagings are expressly permitted in other modes of transport per Packing Instruction P002 of the UN Model Regulations. Combination packagings should be considered as an acceptable method of packing for air transport; however, the compliance-focussed nature of some acceptance personnel can result in rejection of such a packaged consignment.

1.4 Packing Instruction 958 applies a 200 kg maximum net weight for all single packagings yet the UN Model Regulations is more restrictive in limiting the quantity in jerricans to 120 kg and bags to 50 kg. In this respect, the Technical Instructions are less restrictive than the UN Model Regulations.

1.5 Although UN 2212 — **Asbestos, amphibole*** (amosite, tremolite, actinolite, anthophyllite, crocidolite) is shown in the list as FORBIDDEN, the new Packing Instruction 9XX being proposed will also be suitable for UN 2212 having regard to the UN Model Regulations. Provision has been made in the appendices with the addition of square brackets as to how this might be represented.

1.6 The UN Model Regulations applies the following special packing provision:

PP37 For UN 2590 and UN 2212, 5M1 bags are permitted. All bags of any type shall be transported in closed cargo transport units or be placed in closed rigid overpacks.

1.7 A change to the wording of the additional packing requirement for UN 2590 in Packing Instruction 958 should be considered as it currently does not include the need for a “closed cargo transport unit” or “closed rigid overpack” and consideration to allowing the 5M1 multiwall paper bags should be given.

1.8 Certain types of single packagings with a removable head are permitted under the UN Model Regulations but are not currently permitted in air transport. In this respect, the Technical Instructions are regarded as being more restrictive than is necessary. The removable head single packagings should be permitted (e.g. 1A1, 1B1, 1N1).

1.9 Limited quantities applicable to UN 2590 — **Asbestos, chrysotile** should also be considered from the perspective of harmonization with the UN Model Regulations.

1.10 This paper proposes to harmonize with the UN Model Regulations, in respect of asbestos, in the following matters:

- a) expressly permit the use of combination packaging for UN 2590 — **Asbestos, chrysotile**, and align with the UN Model Regulations;
- b) reduce the quantity/weight limit of asbestos per package for expanded plastic boxes and jerricans to align with UN Model Regulations;
- c) permit UN 2590 — **Asbestos, chrysotile** in limited quantity packaging, and align with the UN Model Regulations; and
- d) permit UN 2212 — **Asbestos, amphibole** in combination packaging on passenger aircraft.

2. ACTION BY THE DGP-WG

2.1 The DGP-WG is invited to consider and adopt a revised Packing Instruction 958 that is limited to UN 2071 — **Ammonium nitrate based fertilizer**; and create a separate packing instruction that adopts the packing requirements of the UN Model Regulations applicable to UN 2590 — **Asbestos, chrysotile**, Packing instruction 9XX.

2.2 If it is accepted that Packing Instruction 9XX is relevant and useful, the panel is invited to consider a packing instruction for limited quantities of UN 2590 — **Asbestos, chrysotile**, Packing Instruction Y9XX.

2.3 The DGP-WG is invited to comment upon the proposal to permit the packing and carriage of UN 2212, **Asbestos, amphibole**. Provision has been made in Packing Instruction 9XX, in square brackets, for this broader range of asbestos, consistent with the UN provisions.

2.4 The proposed amendment to the dangerous goods list is set out in Appendix A; the amendment to Packing Instruction 958 is shown in Appendix B; and new Packing Instructions 9XX and Y9XX are shown at Appendix C.

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APPENDIX A

PROPOSED AMENDMENT TO PART 3 OF THE TECHNICAL INSTRUCTIONS

Part 3

DANGEROUS GOODS LIST,
SPECIAL PROVISIONS AND
LIMITED AND EXCEPTED QUANTITIES

...

Chapter 2

ARRANGEMENT OF THE
DANGEROUS GOODS LIST (TABLE 3-1)

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Table 3-1. Dangerous Goods List

Name	UN No.	Class or division	Subsidiary risk	Labels	State variations	Special provisions	UN packing group	Excepted quantity	Passenger aircraft		Cargo aircraft	
									Packing instruction	Max. net quantity per package	Packing instruction	Max. net quantity per package
1	2	3	4	5	6	7	8	9	10	11	12	13
...												
Asbestos, amphibole* (amosite, tremolite, actinolite, anthophyllite, crocidolite)†	2212	9		[Miscellaneous]		A61	[III]		FORBIDDEN		FORBIDDEN	
									[9XX]	[100 kg]	[9XX]	[200 kg]
Asbestos, chrysotile †	2590	9		Miscellaneous	US 4	A61	III	E1	9589XX Y9XX	200 kg 30 kg	9589XX	200 kg
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APPENDIX B

PROPOSED AMENDMENT TO PACKING INSTRUCTION 958 OF THE TECHNICAL INSTRUCTIONS

Part 4

PACKING INSTRUCTIONS

...

Chapter 11

CLASS 9 — MISCELLANEOUS DANGEROUS GOODS

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Packing Instruction 958

Passenger and cargo aircraft for UN 2071 and UN 2500 only

General requirements

Part 4, Chapter 1 requirements must be met, including:

1) **Compatibility requirements**

— Substances must be compatible with their packagings as required by 4;1.1.3.

2) **Closure requirements**

— Closures must meet the requirements of 4;1.1.4.

<i>UN number and proper shipping name</i>	<i>Quantity — passenger</i>	<i>Quantity — cargo</i>	SINGLE PACKAGINGS
UN 2071 Ammonium nitrate fertilizers UN 2500 Asbestos, chrysotile	200 kg	200 kg	Yes

ADDITIONAL PACKING REQUIREMENTS

For UN 2071 and 2500

— All rigid packagings must be sift-proof.

For UN 2500

~~— Bags must be palletized and unitized by methods such as shrink wrapping in plastic film or wrapping in fibreboard secured by strapping.~~

SINGLE PACKAGINGS

Bags

Plastics (5H4)
Textile (5L3)
Woven plastics (5H3)

Boxes

Fibreboard (4G)
Natural wood (4C2)
Other metal (4N)
Plastics (4H1, 4H2)
Plywood (4D)
Reconstituted wood (4F)

Drums

Aluminium (1B2)
Fibre (1G)
Plastics (1H2)
Plywood (1D)
Steel (1A2)

Jerricans

Plastics (3H2)
Steel (3A2)

APPENDIX C

PROPOSED NEW PACKING INSTRUCTION FOR ASBESTOS IN THE TECHNICAL INSTRUCTIONS

Part 4

PACKING INSTRUCTIONS

...

Chapter 11

CLASS 9 — MISCELLANEOUS DANGEROUS GOODS

...

Packing Instruction 9XX

Passenger and cargo aircraft for UN 2590 [and UN 2212] only

General requirements

Part 4, Chapter 1 requirements must be met, including:

1) Compatibility requirements

— Substances must be compatible with their packagings as required by 4:1.1.3.

2) Closure requirements

— Closures must meet the requirements of 4:1.1.4.

COMBINATION PACKAGINGS						SINGLE PACKAGINGS	
<i>UN number and proper shipping name</i>	<i>Packing group</i>	<i>Inner packaging (see 6:3.2)</i>	<i>Inner packaging quantity (per receptacle)</i>	<i>Total quantity per package — passenger</i>	<i>Total gross mass per package — cargo</i>	<i>Quantity — passenger</i>	<i>Quantity — cargo</i>
[UN 2212 Asbestos, amphibole* (amosite, tremolite, actinolite, anthophyllite, crocidolite)†]	II	Glass	10.0 kg	[100 kg]	[200 kg]	[No]	[200 kg]
		Plastics	50.0 kg				
		Metal	50.0 kg				
		Paper bag	50.0 kg				
		Plastic bag	50.0 kg				
		Fibre	50.0 kg				
UN 2590 Asbestos, chrysotile †	III	Glass	10.0 kg	200 kg	200 kg	No	200 kg
		Plastics	50.0 kg				
		Metal	50.0 kg				
		Paper bag	50.0 kg				
		Plastic bag	50.0 kg				
		Fibre	50.0 kg				

ADDITIONAL PACKING REQUIREMENTS FOR COMBINATION PACKAGINGS

- Plastic, paper and fibre inner packagings must be siftproof.
- The total quantity per package for expanded plastic boxes (4H1) is 60 kg.
- The total quantity per package for jerricans (3A1, 3A2, 3B1, 3B2, 3H1, 3H2) is 120 kg.

OUTER PACKAGINGS OF COMBINATION PACKAGINGS (See 6:3.1)

<u>Boxes</u>	<u>Drums</u>	<u>Jerricans</u>
<u>Aluminium (4B)</u>	<u>Aluminium (1B1, 1B2)</u>	<u>Aluminium (3B1, 3B2)</u>
<u>Fibreboard (4G)</u>	<u>Fibre (1G)</u>	<u>Plastics (3H1, 3H2)</u>
<u>Natural wood (4C1, 4C2)</u>	<u>Other metal (1N1, 1N2)</u>	<u>Steel (3A1, 3A2)</u>
<u>Other metal (4N)</u>	<u>Plastics (1H1, 1H2)</u>	
<u>Plastics (4H1, 4H2)</u>	<u>Plywood (1D)</u>	
<u>Plywood (4D)</u>	<u>Steel (1A1, 1A2)</u>	
<u>Reconstituted wood (4F)</u>		
<u>Steel (4A)</u>		

ADDITIONAL PACKING REQUIREMENTS FOR SINGLE PACKAGINGS

- All bags of any type must be transported in closed cargo transport units or be placed in closed rigid overpacks.
- If the overpack is not siftproof, a means of containing the contents in the event of leakage must be provided in the form of a leakproof liner, plastic bag or other equally efficient means of containment.

SINGLE PACKAGINGS

<u>Bags</u>	<u>Boxes</u>	<u>Drums</u>	<u>Jerricans</u>
<u>Paper (5M1, 5M2)</u>	<u>Aluminium (4B)</u>	<u>Aluminium (1B2)</u>	<u>Plastics (3H2)</u>
<u>Plastics (5H4)</u>	<u>Fibreboard (4G)</u>	<u>Fibre (1G)</u>	<u>Steel (3A2)</u>
<u>Textile (5L3)</u>	<u>Natural wood (4C1, 4C2)</u>	<u>Plastics (1H2)</u>	
<u>Woven plastics (5H3)</u>	<u>Other metal (4N)</u>	<u>Plywood (1D)</u>	
	<u>Plastics (4H2)</u>	<u>Steel (1A2)</u>	
	<u>Plywood (4D)</u>		
	<u>Reconstituted wood (4F)</u>		
	<u>Steel (4A)</u>		

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Packing Instruction Y9XX

Limited quantities
Passenger and cargo aircraft for UN 2590 only

General requirements

Part 4, Chapter 1 requirements must be met, (except that 4:1.1.2, 1.1.9 c) 1.1.9 e) and 1.1.16 do not apply), including:

1) Compatibility requirements

— Substances must be compatible with their packagings as required by 4:1.1.3.

2) Closure requirements

— Closures must meet the requirements of 4:1.1.4.

3) Limited quantity requirements

— Part 3, Chapter 4 requirements must be met, including:

- the capability of the package to pass a 1.2 m drop test; and
- a 24-hour stacking test.

<u>COMBINATION PACKAGINGS</u>						<u>SINGLE PACKAGINGS</u>
<u>UN number and proper shipping name</u>	<u>Packing group</u>	<u>Inner packaging (see 6:3.2)</u>	<u>Inner packaging quantity (per receptacle)</u>	<u>Total quantity per package</u>	<u>Total gross mass per package</u>	
<u>UN 2590 Asbestos, chrysotile†</u>	<u>III</u>	<u>Glass</u>	<u>1.0 kg</u>	<u>30 kg G</u>	<u>30 kg</u>	<u>No</u>
		<u>Plastics</u>	<u>5.0 kg</u>			
		<u>Metal</u>	<u>5.0 kg</u>			
		<u>Paper bag</u>	<u>5.0 kg</u>			
		<u>Plastic bag</u>	<u>5.0 kg</u>			
		<u>Fibre</u>	<u>5.0 kg</u>			

ADDITIONAL PACKING REQUIREMENTS FOR COMBINATION PACKAGINGS

- Plastic, paper and fibre inner packagings must be siftproof.
- If the outer packaging is not siftproof, a means of containing the contents in the event of leakage must be provided in the form of a leakproof liner, plastic bag or other equally efficient means of containment.

OUTER PACKAGINGS OF COMBINATION PACKAGINGS (See 6:3.1)Boxes

Aluminium
Fibreboard
Natural wood
Other metal
Plastics
Plywood
Reconstituted wood
Steel

Drums

Aluminium
Fibre
Other metal
Plastics
Plywood
Steel

Jerricans

Aluminium
Plastics
Steel