



危险物品专家组(DGP)

第二十六次会议

2017年10月16日至27日，蒙特利尔

议程项目 2： 拟定对《危险物品安全航空运输技术细则》(Doc 9284 号文件)的修订建议，以便纳入2019年—2020年版

包装说明958: UN 2590

(由Adrian Tusek提交)

摘要

《技术细则》与联合国关于包装石棉的建议有若干不一致之处。

包装说明958同时适用于硝酸铵基肥料和UN 2590 — 石棉，温石棉。

本文件提议在包装说明958中去除UN 2590 — 石棉，温石棉，并制定与联合国规章范本一致的两项新的包装说明。

**危险物品专家组的行动:**请危险物品专家组审议本文件附录中拟议的包装说明。

1. INTRODUCTION

1.1 A number of inconsistencies between the ICAO Technical Instructions and Packing Instruction 958 with respect to asbestos were identified and a new packing instruction was proposed at the seventeenth working group meeting of the Dangerous Goods Panel (DGP-WG/17, Montréal, 24 to 28 April 2017) to address them.

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\*仅提供了摘要和附录的翻译。

1.2 The following inconsistencies were identified and set out in the report of the by the working group (see paragraph 3.2.4.4 of the DGP-WG/17 report):

- a) Combination packagings were not provided for in Packing Instruction 958, the packing instruction assigned to UN 2590 — **Asbestos, chrysotile**. The UN Model Regulations does allow for them. It was agreed that not allowing them was likely unintentional and that there would be no reason not to allow them for transport by air.
- b) The maximum quantity permitted per single packaging was 200 kg for UN 2590 Asbestos, chrysotile but was limited to 120 kg for jerricans and 50 kg for bags in the UN Model Regulations. It was noted that the 200 kg limit applied to all allowable packagings in Packing Instruction 958 and that specific limits for each type of packaging were not provided. The maximum net mass for steel and plastic Jerricans was 120 kg and for bags was 50 kg by design in accordance with Part 6, so specifying a lower limit for these packagings would be unnecessary within the structure of the Technical Instructions.
- c) Certain types of single packagings with a removeable head were permitted in accordance with the UN Model Regulations but not in the Technical Instructions. It was suggested that only permitting non-removeable heads in the Technical Instructions was intentional.
- d) A particular packing provision was assigned to UN 2590 and UN 2212 in the UN Model Regulations allowing bags, provided they were transported in closed cargo transport units or placed in closed rigid overpacks which was not included in the Technical Instructions. It was suggested that this was also intentional, recognizing that closed cargo transport units were not permitted for transport of dangerous goods by air. There were specific requirements for bags to be palletized and unitized in Packing Instruction 958.
- e) UN 2212 — **Asbestos, amphibole** was forbidden for transport on both passenger and cargo aircraft. It was questioned whether this was justified. The working group wanted to assess the original reasoning for forbidding it before making a decision.
- f) The UN Model Regulations permitted transport of asbestos in limited quantities but there were no provisions for limited quantities in the Technical Instructions. A new limited quantity packing instruction for UN 2590 — **Asbestos, chrysotile** was also proposed. There were no comments on this proposal, other than the need for a revision to the maximum net quantity per package limit for limited quantities should the DGP agree to adopt the packing instruction.

1.3 The following inconsistencies were identified and set out in the DGP-WG/17 report (see paragraph 3.2.4.4):

- a) No changes based on 1.2 a);
- b) The inclusion of reference to a 60 kg limit for plastic boxes (4H1) and 120 kg limit for Jerricans (3A1, 3A2, 3B1, 3B2, 3H1, 3H2) has been deleted from the proposed packing instruction. See 1.2 b);

- c) The working group believed that only permitting single packagings with a non-removable head (see 1.2 c) above) was intentional. I have been unable to find information that supports this position and have retained the ability to use removable head single packagings in this proposal;
- d) Based on the comments in 1.2 d) the ability to use bags in single packagings has been deleted;
- e) In response to 1.2 e), the original reason for listing UN 2212 **Asbestos, amphibole** “forbidden” in the Technical Instructions was not ascertained. Historically, it was the case that UN 2212 Asbestos, amphibole was thought to be a greater health hazard than UN 2590 **Asbestos, chrysotile** but has since been shown not to be the case and both are equally harmful. The UN Model Regulations does not treat either differently for packaging or transport. In 2.9.2 Assignment to Class 9 in the UN Model Regulations it states “Substances which, on inhalation as fine dust, may endanger health” and lists both UN 2212 and UN 2590. Similar wording does not exist in the Technical Instructions. However, there appears to be no reason why UN 2212 should be treated differently to UN 2590 with regard to the hazard to health from fine dust and this hazard is mitigated by the packing method for both; and
- f) In response to 1.2 f), the UN Model Regulations applies a 5 kg maximum net quantity per inner packaging to UN 2212 and UN 2590. However, in air transport, it would not be unreasonable to set a maximum net quantity per package of 1 kg as this would support the asbestos testing industry as samples for testing are usually small in size even when multiple samples from a site are combined.

## 2. ACTION BY THE DGP

2.1 The DGP is invited to consider and adopt a revised Packing Instruction 958 that adopts the packing requirements of the UN Model Regulations applicable to UN 2590. The proposed new Packing Instruction 9XX and Y9XX are shown at Appendix B to this working paper.

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附录A

对《技术细则》第3部分的拟议修订

第3部分

危险物品表，特殊规定和限制数量与例外数量

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第2章

危险物品表(表 3-1)的编排

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表 3-1 危险物品表

名称	UN 编号	类别或项别	次要危险性	标签	国家差异条款	特殊规定	UN 包装等级	例外数量	客机		货机	
									包装说明	每个包装件最大净量	包装说明	每个包装件最大净量
1	2	3	4	5	6	7	8	9	10	11	12	13
<b>Asbestos, amphibole*</b> (amosite, tremolite, actinolite, anthophyllite, crocidolite)† 石棉, 闪石* (铁石棉, 透闪石, 阳起石, 直闪石, 青石棉) †	2212	9		[Miscellaneous] 杂项危险物品		A61	[II]		FORBIDDEN 禁运		FORBIDDEN 禁运	
									[9XX]	[100 kg]	[9XX]	[200 kg]
<b>Asbestos, chrysotile †</b> 白石棉, 温石棉†	2590	9		Miscellaneous 杂项危险物品	US 4	A61	III	E1	9589XX Y9XX	200 kg 1 kg	9589XX	200 kg
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## 附录B

### 对《技术细则》第4部分的拟议修订

#### 第4部分

#### 包装说明

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#### 第 11 章

#### 第 9 类 — 杂项危险物品

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#### 包装说明958

仅限于UN 2071和UN 2590的客机和货机运输

##### 一般要求

必须符合第4部分第1章的要求，其中包括：

##### 1) 相容性要求

— 物质必须按照4; 1.1.3的要求与其包装相容。

##### 2) 封闭要求

— 封闭必须符合4; 1.1.4的要求。

联合国编号和运输专用名称	客机数量	货机数量	单一包装
UN2071 Ammonium nitrate fertilizers 硝酸铵肥料 <del>UN2590 Asbestos, chrysotile 温石棉</del>	200 kg	200 kg	是

##### 补充包装要求

对于UN 2071和~~2590~~

— 所有硬质包装必须是防撒漏型包装。

~~对于UN 2590~~

~~— 袋子必须装在集装板上，然后用收缩性塑料薄膜或纤维板整个包裹起来，纤维板要用带子捆紧。~~

##### 单一包装

袋	箱	桶	方桶
塑料 (5H4)	纤维板 (4G)	铝 (1B2)	塑料 (3H2)
纺织品 (5L3)	天然木 (4C2)	纤维 (1G)	钢 (3A2)
编织塑料 (5H3)	其他金属 (4N)	塑料 (1H2)	

## 附录 B

塑料 (4H1, 4H2)	胶合板 (1D)
胶合板 (4D)	钢 (1A2)
再生木 (4F)	

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**包装说明9XX**

仅限于UN 2590 和UN 2212 的客机和货机运输

一般要求

必须符合第4部分第1章的要求，其中包括：

1) 相容性要求

— 物质必须按照4:1.1.3的要求与其包装相容。

2) 封闭要求

— 封闭必须符合4:1.1.4的要求。

<u>组合包装</u>					<u>单一包装</u>		
<u>联合国编号和运输专用名称</u>	<u>包装等级</u>	<u>内包装 (见6:3.2)</u>	<u>(每个容器) 内包装数量</u>	<u>每个包装件总量-客机</u>	<u>每个包装件总毛重-货机</u>	<u>客机数量</u>	<u>货机数量</u>
<u>UN 2212 石棉, 闪石* (铁石棉、透闪石、阳起石、直闪石、青石棉)</u>	II	<u>玻璃</u>	<u>10.0 kg</u>	<u>[100 kg]</u>	<u>[200 kg]</u>	否	<u>[200 kg]</u>
		<u>塑料</u>	<u>50.0 kg</u>				
		<u>金属</u>	<u>50.0 kg</u>				
		<u>纸袋</u>	<u>50.0 kg</u>				
		<u>塑料袋</u>	<u>50.0 kg</u>				
<u>UN 2590 石棉, 温石棉</u>	III	<u>玻璃</u>	<u>10.0 kg</u>	<u>200 kg</u>	<u>200 kg</u>	否	<u>200 kg</u>
		<u>塑料</u>	<u>50.0 kg</u>				
		<u>金属</u>	<u>50.0 kg</u>				
		<u>纸袋</u>	<u>50.0 kg</u>				
		<u>塑料袋</u>	<u>50.0 kg</u>				
		<u>纤维</u>	<u>50.0 kg</u>				

组合包装的补充包装要求— 塑料、纸和纤维内包装必须防撒漏。组合包装的外包装 (见6:3.1)箱

铝 (4B)  
纤维板 (4G)  
天然木 (4C1, 4C2)  
其他金属 (4N)  
塑料 (4H1, 4H2)  
胶合板 (4D)  
再生木 (4F)  
钢 (4A)

桶

铝 (1B1, 1B2)  
纤维 (1G)  
其他金属 (1N1, 1N2)  
塑料 (1H1, 1H2)  
胶合板 (1D)  
钢 (1A1, 1A2)

方桶

铝 (3B1, 3B2)  
塑料 (3H1, 3H2)  
钢 (3A1, 3A2)



单一包装的补充包装要求

- 所有任何类型的袋子必须在密闭的货物运输装置中或放在密闭的硬质合成包装件内运输。
- 若合成包装件不是防撒漏型，必须以防漏衬里、塑料袋或其他同等有效的封存手段的形式提供万一出现泄漏情况下封存内容物的手段。

单一包装

<u>箱</u>	<u>桶</u>	<u>方桶</u>
<u>铝 (4B)</u>	<u>铝 (1B2)</u>	<u>塑料 (3H1, 3H2)</u>
<u>纤维板 (4G)</u>	<u>纤维 (1G)</u>	<u>钢 (3A1, 3H2)</u>
<u>天然木 (4C1, 4C2)</u>	<u>塑料 (1H2)</u>	
<u>其他金属 (4N)</u>	<u>胶合板 (1D)</u>	
<u>塑料 (4H2)</u>	<u>钢 (1A2)</u>	
<u>胶合板 (4D)</u>		
<u>再生木 (4F)</u>		
<u>钢 (4A)</u>		

包装说明 Y9XX限制数量

仅限于UN 2212 和UN 2590的客机和货机运输

一般要求

必须符合第4部分第1章的要求（但4;1.1.2、1.1.9 c)、1.1.9 e)、和1.1.16除外），其中包括：

1) 相容性要求

- 物质必须按照4;1.1.3的要求与其包装相容。

2) 封闭要求

- 封闭必须符合4;1.1.4的要求。

3) 限制数量要求

- 必须符合第3部分第4章的要求，其中包括：
  - 包装件能够通过1.2米的跌落试验；和
  - 24小时的堆码试验。

<u>组合包装</u>						<u>单一包装</u>
<u>联合国编号和 运输专用名称</u>	<u>包装 等级</u>	<u>内包装 (见6;3.2)</u>	<u>(每个容器) 内包装数量</u>	<u>每个包装件 最大净量</u>	<u>每个包装件 总毛重</u>	
<u>UN 2212 石棉, 闪石*</u> <u>(铁石棉、透闪石、阳起石、直 闪石、青石棉)</u> <u>UN 2590 石棉,</u> <u>温石棉</u>	<u>III</u>	<u>玻璃</u>	<u>0.2 kg</u>	<u>1 kg</u>	<u>30 kg</u>	<u>否</u>
		<u>塑料</u>	<u>1.0 kg</u>			
		<u>金属</u>	<u>1.0 kg</u>			
		<u>纸袋</u>	<u>1.0 kg</u>			
		<u>塑料袋</u>	<u>1.0 kg</u>			
<u>纤维</u>	<u>1.0 kg</u>					

组合包装的补充包装要求

- 塑料、纸和纤维内包装必须防撒漏。
- 若外包装不是防撒漏型，必须以防漏衬里、塑料袋或其他同等有效的封存手段的形式提供万一出现泄漏情况下封存内容物的手段。

附录 B

组合包装的外包装(见 6;3.1)

箱

铝

纤维板

天然木

其他金属

塑料

胶合板

再生木

钢

桶

铝

纤维

其他金属

塑料

胶合板

钢

方桶

铝

塑料

钢