



## WORKING PAPER

### DANGEROUS GOODS PANEL (DGP)

#### TWENTY-SECOND MEETING

Montréal, 5 to 16 October 2009

**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 2011-2012 Edition**

#### SEGREGATION OF EXPLOSIVES

(Presented by D. Raadgers)

##### SUMMARY

This paper proposes an amendment to Part 7 of the *Technical Instructions for the Safe Transport of Dangerous Goods by Air* (Doc 9284) in order to regulate the segregation between explosives of Division 1.4B and other explosives of Division 1.4, with the exception of Division 1.4S.

**Action by the DGP:** This DGP is invited to adopt one of the two proposals presented in the appendix to this working paper which specify the requirement of segregation. Proposal 1 introduces a table which, based on the explosives which are normally allowed to be transported by air, will clearly indicate which explosives are not allowed to be loaded together, similar to the general segregation Table 7-1. The second proposal amends the existing text of 7;2.2.2.5. The DGP is also invited to amend 7;2.2.2.5 as presented in the two proposals.

#### 1. INTRODUCTION

1.1 Paragraph 7.1.3.1.2 (c) of the UN Model Regulations states that packages bearing explosives with different compatibility group letters shall in general not be transported together (regardless of the division number) except in the case of compatibility group letters C, D, E and S as explained in 7.1.3.1.3 and 7.1.3.1.4.

1.2 Regulations for the other modes of transport (e.g. the IMDG code and ADR) prohibit explosives of Division 1.4, compatibility group B to be loaded/stowed together with other explosives of Division 1.4, except compatibility group S.

1.3 Explosives of compatibility group B are articles containing a primary explosive substance and not containing two or more effective protective features. Some articles, such as detonators for blasting, detonator assemblies for blasting and primers, and cap-type, are included even though they do not contain primary explosives. These articles are used to initiate explosives and must therefore be separated from other explosives during transport and storage. The only exception is explosives of Division 1.4S, since all effects of explosives in Division 1.4S are confined within the packaging when an initiation should occur.

1.4 In 2005, the DGP adopted new text regarding the segregation of explosives. This decision was based on the fact that most explosives are normally not carried by air and therefore the segregation requirements could be simplified. The present text of Part 7;2.2.5 only regulates the segregation between Division 1.3 and Division 1.4B. However, the current text allows Division 1.4B to be stowed next to other Division 1.4 explosives, e.g. Division 1.4D which contains secondary detonating explosives and articles containing such explosives.

1.5 The simplified segregation regulations in the Technical Instructions therefore permit the carriage of detonators next to explosives. It is the understanding of the proposer of this working paper that this is not the intention of the DGP, to permit this, but an omission.

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**APPENDIX**  
**AMENDMENTS TO THE TECHNICAL INSTRUCTIONS**

**PROPOSAL 1**

**Part 7**  
**OPERATOR'S RESPONSIBILITIES**  
**Chapter 2**  
**STORAGE AND LOADING**

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**2.2.2 Separation of explosive substances and articles**

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2.2.2.5 ~~Explosives in Division 1.4B and explosives in Division 1.3 must not be stowed together. Division 1.4B and Division 1.3 explosives must be loaded into separate unit load devices and, when stowed aboard the aircraft, the unit load devices must be separated by other cargo with a minimum separation distance of 2 m. When not loaded in a unit load device, Division 1.4B and Division 1.3 explosives must be loaded into different, non-adjacent loading positions and separated by other cargo with a minimum separation distance of 2 m.~~ For explosives of different division numbers and compatibility groups the segregation scheme shown in Table 7-X must be followed in order to maintain acceptable distance between such packages.

**Table 7-X. Separation of explosive substances and articles**

<u>Division and compatibility group</u>	<u>1.3C</u>	<u>1.3G</u>	<u>1.4B</u>	<u>1.4C</u>	<u>1.4D</u>	<u>1.4E</u>	<u>1.4G</u>	<u>1.4S</u>
<u>1.3C</u>			x					
<u>1.3G</u>			x					
<u>1.4B</u>	x	x		x	x	x	x	
<u>1.4C</u>			x					
<u>1.4D</u>			x					
<u>1.4E</u>			x					
<u>1.4G</u>			x					
<u>1.4S</u>								

An "x" at the intersection of a row and column indicates that explosives of these divisions and compatibility groups must be loaded into separate unit load devices and, when stowed aboard the aircraft, the unit load devices must be separated by other cargo with a minimum separation distance of 2 m. When not loaded in a unit load device, these explosives must be loaded into different, non-adjacent loading positions and separated by other cargo with a minimum separation distance of 2 m.

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**PROPOSAL 2**

**Part 7**

**OPERATOR'S RESPONSIBILITIES**

**Chapter 2**

**STORAGE AND LOADING**

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**2.2.2 Separation of explosive substances and articles**

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2.2.2.5 ~~Explosives in Division 1.4B and explosives in Division 1.3 must not be stowed together. Division 1.4B and Division 1.3 explosives must be loaded into separate unit load devices and, when stowed aboard the aircraft, the unit load devices must be separated by other cargo with a minimum separation distance of 2 m. When not loaded in a unit load device, Division 1.4B and Division 1.3 explosives must be loaded into different, non-adjacent loading positions and separated by other cargo with a minimum separation distance of 2 m.~~ Explosives of Division 1.4 compatibility group B and explosives of other divisions and compatibility groups with the exception of division 1.4 compatibility group S, must be loaded into separate unit load devices and, when stowed aboard the aircraft, the unit load devices must be separated by other cargo with a minimum separation distance of 2 m. When not loaded in a unit load device, these explosives must be loaded into different, non-adjacent loading positions and separated by other cargo with a minimum separation distance of 2 m.

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