



WORKING PAPER

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

Atlantic City, United States, 4 to 8 April 2011

Agenda Item 3: Development of recommendations for amendments to the *Supplement to the Technical Instructions for the Safe Transport of Dangerous Goods by Air* (Doc 9284SU) for incorporation in the 2013-2014 Edition

SEPARATION OF EXPLOSIVES

(Presented by T.L. Muller)

SUMMARY

This paper proposes the addition of new text in Part S-7 of the *Supplement to the Technical Instructions for the Safe Transport of Dangerous Goods by Air* (Doc 9284SU) for the separation of explosives, which are transported under an approval or exemption.

Action by the DGP-WG is in paragraph 2.

1. INTRODUCTION

1.1 A proposal to change the separation requirements of explosives was adopted by DGP/22 (DGP/22-WP/78). The presenter of the proposal offered to provide a working paper at the working group of the whole meeting in Abu Dhabi (DGP-WG/10, 7 to 11 November 2010) with a new proposal to include the separation requirements for explosives that are normally forbidden from transport in the Supplement to the Technical Instructions. During discussion of DGP-WG/10-WP/19 at the working group meeting in Abu Dhabi, it was felt that the text was incomplete. In this revised working paper, the text of chapter 7.1.3.1 of the Model Regulations has been considered and where necessary amended to suit the air mode. Paragraphs 7.1.3.1.2 (b), 7.1.3.1.3 and 7.1.3.1.6 of the Model Regulations are not applicable to the air mode, since these paragraphs deal with stowage arrangements and the labelling and placarding of containers and vehicles and the maximum quantity allowed to be carried in one transport unit. A table showing the separation between different compatibility groups has been included in the proposal for convenience, since a table makes requirements more clear than text only. Similar tables are used in the regulations for the other modes of transport.

1.2 Explosives of Class 1 are assigned to one of six divisions, depending on the type of hazard they present, and to one of thirteen compatibility groups that identify the kinds of explosive substances and articles that are deemed to be compatible.

1.3 The separation of explosives with different compatibility groups may be necessary due to the fact that accidental function during transport may lead to initiation of other explosives and therefore may magnify the effects of such an accident. This is especially the case when articles containing primary explosives such as detonators, or articles having their own means of initiation such as certain military explosives, are loaded together with substances or articles containing secondary explosives.

1.4 This working paper proposes detailed requirements and a separation table for explosives to be included in the Supplement to the Technical Instructions, so that this information is available to the competent authority when granting an approval or exemption for the transport of explosives that are normally forbidden by air.

2. ACTION BY THE DGP-WG

2.1 The DGP-WG is invited to include a new paragraph S-7;2.3 of the Supplement and a note under S-1;1.1 as follows:

Part S-7

STATE'S RESPONSIBILITIES

(ADDITIONAL INFORMATION RELATED TO PART 7 OF THE TECHNICAL INSTRUCTIONS)

Chapter 2

STORAGE AND LOADING

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2.3 Separation of explosive substances and articles

Note.—: The safety of explosive substances and articles would be enhanced by transporting each kind separately, but consideration of practicability and economics preclude such an ideal. In practice, a proper balance of the interest of safety against the other relevant factors necessitates a degree of mixing in the transport of explosive substances and articles of several kinds.

2.3.1 The extent to which explosives of Class 1 may be loaded together in transport is determined by the "compatibility" of the explosives. Explosives of Class 1 are considered to be compatible if they can be transported together without significantly increasing either the probability of an accident or, for a given quantity, the magnitude of the effects of such an accident.

2.3.2 Explosives in Compatibility Groups A to K and N may be transported in accordance with the following provisions:

a) Packages bearing the same Compatibility Group letter may be stowed together regardless of the division number;

b) Packages bearing different Compatibility Group letters must not in general be stowed together (regardless of the division number) except in the case of Compatibility Group letters C, D, E and S as explained in 2.3.3 and 2.3.4 below.

2.3.3 Explosives in Compatibility Groups C, D, E may be stowed together.

2.3.4 Explosives in Compatibility Group S may be stowed with explosives in all compatibility groups other than A and L.

2.3.5 Explosives in Compatibility Group L must not be transported with explosives in other compatibility groups. Furthermore, explosives in Compatibility Group L may only be transported with the same type of explosives within Compatibility Group L.

2.3.6 Table S-7-X provides guidance for the separation of packages containing explosives with different compatibility groups. An "X" at the intersection of a row and column indicates that explosives of these compatibility groups must be separated. The method of separation (e.g. the minimum distance between incompatible explosives and/or separation of incompatible explosives with other cargo) must be approved by the competent authority, taking into account the danger of transmission of detonation between the different explosives.

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

<u>Compatibility group</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>	<u>F</u>	<u>G</u>	<u>H</u>	<u>J</u>	<u>K</u>	<u>L</u>	<u>N</u>	<u>S</u>
<u>A</u>		X	X	X	X	X	X	X	X	X	X	X	X
<u>B</u>	X		X	X	X	X	X	X	X	X	X	X	X
<u>C</u>	X	X				X	X	X	X	X	X	X	
<u>D</u>	X	X				X	X	X	X	X	X	X	
<u>E</u>	X	X				X	X	X	X	X	X	X	
<u>F</u>	X	X	X	X	X		X	X	X	X	X	X	
<u>G</u>	X	X	X	X	X	X		X	X	X	X	X	
<u>H</u>	X	X	X	X	X	X	X		X	X	X	X	
<u>J</u>	X	X	X	X	X	X	X	X		X	X	X	
<u>K</u>	X	X	X	X	X	X	X	X	X		X	X	
<u>L</u>	X	X	X	X	X	X	X	X	X	X	1)	X	X
<u>N</u>	X	X	X	X	X	X	X	X	X	X	X		
<u>S</u>	X										X		

1) see 2.3.5 above.

Part S-1

GENERAL

(ADDITIONAL INFORMATION FOR PART 1 OF THE TECHNICAL INSTRUCTIONS)

Chapter 1

SCOPE AND APPLICABILITY

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1.1 DESIGNATION OF NATIONAL AUTHORITY

1.1.1 Each State must designate the appropriate authority within its administration to be responsible for ensuring compliance with Annex 18 — The Safe Transport of Dangerous Goods by Air and these Instructions. Details specifying the primary point of contact must be notified to ICAO for publication in the Technical Instructions for the Safe Transport of Dangerous Goods by Air (Doc 9284) and for dissemination on the public website. As a minimum, these details must include:

- a) name;
- b) title (of person or position);
- c) address;
- d) phone number;
- e) facsimile number;
- f) e-mail address; and
- g) website address (if applicable).

1.1.2 In addition, contact information for other agencies responsible for specific classes (e.g. radioactive material, infectious substances) or for specific actions (e.g. issuance of approvals or exemptions) should be included.

| *Note.— For the separation of explosives, see Part 7:2.3.*

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