



WORKING PAPER

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

The Hague, 3 to 7 November 2008

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

TRANSPORT OF DANGEROUS GOODS IN NON-PRESSURIZED CARGO HOLDS

(Presented by D. V. Mirko)

SUMMARY

This paper proposes to add a specific pressure differential value to the note in Part 7;2.4.1 of the Technical Instructions and to amend the text in Note 3 of the Introductory Notes to Part 4 on pressure variations.

Action by the DGP-WG is in paragraph 2.

1. INTRODUCTION

1.1 The note under paragraph 7;2.4.1 (Loading and Securing of Dangerous Goods) was agreed at DGP/21. The note provides principles for the transport of dangerous goods in non-pressurized cargo holds. The original proposal to DGP/21 (DGP/21-WP/27) provided reference to specific pressure differential values. There was confusion with the values since the ones in Note 3 of the Introductory Notes to Part 4 appeared to be different. It was therefore agreed to remove reference to specific values until further information could be provided at the next meeting.

1.2 Information about values of absolute pressure and pressure differentials is presented in the appendix to this working paper.

2. ACTION BY THE DGP-WG

2.1 The DGP-WG is invited to agree to add a pressure differential value in the note under 7;2.4.1 of the Technical Instructions and to amend Note 3 of the Introductory Notes to Part 4 as follows:

Part 7

OPERATOR'S RESPONSIBILITIES

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Chapter 2

STORAGE AND LOADING

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2.4 LOADING AND SECURING OF DANGEROUS GOODS

2.4.1 Loading on cargo aircraft

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Note — When transporting goods in a non-pressurized cargo hold, there will be a large pressure differential, up to 75 kPa, at high altitudes. Packages that are filled at a normal atmospheric pressure may not be capable of withstanding this pressure differential. Confirmation of the suitability of the packaging from the shipper may be required.

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Part 4

PACKING INSTRUCTIONS

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Note 3.— Pressure variations

Due to altitude, absolute pressure reductions will be encountered under flight conditions which may in extreme conditions be of the order of 68 kPa for pressurized cargo holds. Since receptacles or packagings will generally be filled at normal atmospheric pressure of approximately 100 kPa, these pressure reductions will tend to cause discharge of liquid contents or bursting of the receptacles or packagings during flight, unless each receptacle or packaging and its closures meet the packaging test requirements.

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APPENDIX

INFORMATION ON THE VALUES OF ABSOLUTE PRESSURE AND PRESSURE DIFFERENTIAL

Pressure inside cargo hold.

Altitude feet	1.1.1 Altitude meters	Pressurized kPa	Non pressurized kPa
0	0	$P_v=100$	$P_v=100$
9.843	3.000	$P_v=69$	$P_v=69$
32.810	10.000	$P_v=69$	$P_v=25$
39.372	12.000	$P_v=69$	$P_v=19$

Pressure difference package – cargo hold.

Altitude feet	1.1.2 Altitude meters	Pressurized kPa	Non pressurized kPa
0	0	$P_p-P_v=0$	$P_p-P_v=0$
9.843	3.000	$P_p-P_v=31$	$P_p-P_v=31$
32.810	10.000	$P_p-P_v=31$	$P_p-P_v=75$
39.372	12.000	$P_p-P_v=31$	$P_p-P_v=81$

Pressurized cargo hold

