International Civil Aviation Organization

DGP-WG/16-WP/44
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WORKING PAPER

DANGEROUS GOODS PANEL (DGP)
WORKING GROUP MEETING (DGP-WG/16)

Montreal, 17 to 21 October 2016

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

TEST FOR PACKAGES OF DANGEROUS GOODS IN EXCEPTED QUANTITIES

(Presented by B. Carrara)

SUMMARY

This working paper invites the DGP-WG to consider reviewing the provisions related to tests for packages of dangerous goods packed in excepted quantities, in particular, those required by Part 3;5.3.1 b) of the Technical Instructions.

Action by the DGP-WG: The DGP-WG is invited to review the provisions related to the stacking test for packages of dangerous goods packed in excepted quantities. If considered necessary, the DGP-WG is invited to amend Part 3;5.3.1 b) of the Technical Instructions for the sake of alignment with the UN Model Regulations, as shown in the appendix to this working paper.

1. INTRODUCTION

1.1 Packages of dangerous goods in excepted quantities must comply with the provisions of Part 3;5.3 of the Technical Instructions. These provisions require drop and stacking tests to be performed using the complete package as prepared for transport.

1.2 Sub-paragraph 3;5.3.1 a) lists five different orientations that a sample in the shape of a box must be dropped and three different orientations that a sample in the shape of a drum must be dropped. These tests may be performed on different but identical packages.

1.3 Sub-paragraph 3;5.3.1 b) relates to the stacking test. However, the Technical Instructions require the usage of the "drop sample" to achieve a height of 3 meters:

"b) a force applied to the top surface for a duration of 24 hours, equivalent to the total weight of identical packages if stacked to a height of 3 m (including the drop sample)."

1.4 To non-native speakers, the wording in parenthesis seems to require the usage of the same sample used in the drop test to perform the stacking test. If this is the intention of the provision, which sample package should be used, recognizing the Technical Instructions permit different packages to perform each of the drops?

1.5 The wording in the corresponding provision in the UN Model Regulations (3.5.3.1(b)) is different. While the text in parenthesis in the Model Regulations does indicate that a sample must be used to achieve a height of 3 m, there is no indication that the sample used in the drop test must be used:

"3.5.3.1

. . .

(b) A force applied to the top surface for a duration of 24 hours, equivalent to the total weight of identical packages if stacked to a height of 3 m (including the sample)."

1.6 The text in the 15th revised edition of the UN Model Regulations was the same as the Technical Instructions, but "drop" was removed in the 16th revised edition and remains removed now. Research was done, but we did not find the register reflecting the amendment to the provision.

1.7 In any case, we consider the same requirements for testing of packagings should be maintained for the air mode in order to be compatible with the other modes of transport.

2. ACTION BY THE DGP-WG

2.1 The DGP-WG is invited to review the provisions related to the stacking test for packages of dangerous goods packed in excepted quantities.

2.2 If considered necessary, the DGP-WG is invited to amend Part 3;5.3.1 b) of the Technical Instructions for the sake of alignment with the corresponding provision in the UN Model Regulations, as shown in the appendix to this working paper.

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APPENDIX

PROPOSED AMENDMENT TO PART 3 OF THE TECHNICAL INSTRUCTIONS

Part 3

DANGEROUS GOODS LIST, SPECIAL PROVISIONS AND LIMITED AND EXCEPTED QUANTITIES

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Chapter 5

DANGEROUS GOODS PACKED IN EXCEPTED QUANTITIES

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5.3 TESTS FOR PACKAGES

5.3.1 The complete package as prepared for transport, with inner packagings filled to not less than 95 per cent of their capacity for solids or 98 per cent for liquids, must be capable of withstanding, as demonstrated by testing which is appropriately documented, without breakage or leakage of any inner packaging and without significant reduction in effectiveness:

a) drops onto a rigid, non-resilient flat and horizontal surface from a height of 1.8 m:

1) where the sample is in the shape of a box, it must be dropped in each of the following orientations:

— flat on the base;
— flat on the top;
— flat on the longest side;
— flat on the shortest side;
— on a corner;

2) where the sample is in the shape of a drum, it must be dropped in each of the following orientations:

— diagonally on the top chime, with the centre of gravity directly above the point of impact;
— diagonally on the base chime;
— flat on the side.

Note.— Each of the above drops may be performed on different but identical packages.

b) a force applied to the top surface for a duration of 24 hours, equivalent to the total weight of identical packages if stacked to a height of 3 m (including the ~~drop~~ sample).

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