



WORKING PAPER

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

Auckland, New Zealand, 4 to 8 May 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

2.1: Part 1 — General

2.2: Part 2 — Classification

2.3: Part 3 — Dangerous Goods List, Special Provisions and Limited and Excepted Quantities

IMPLEMENTATION OF THE UN TEST SERIES 6(D) TEST FOR 1.4S CLASSIFICATION

(Presented by R. Richard)

SUMMARY

The WG is invited to discuss the implementation of the UN Test Series 6(d) test and the amendments published in Addendum 3/Corrigendum 2 related to the classification of 1.4S explosives.

Action by the DGP-WG is in paragraph 2.

1. INTRODUCTION

1.1 Over the last few years, the UN Sub-Committee of Experts on the Transport of Dangerous Goods has spent considerable time discussing proposed revisions to the criteria for Division 1.4S explosives as found in the UN Manual of Tests and Criteria. Ultimately, revisions were agreed to which included the adoption of a new Test Series 6(d) which is applicable to eight 1.4S UN numbers. These changes were considered in a recent addendum to the *Technical Instructions for the Safe Transport of Dangerous Goods by Air* (Doc 9284) issued 24 March, 2009 (see Addendum 3/Corrigendum 2). Specifically, a new Part 2;1.4.2.1 and SP 165 was added as follows:

Certain Division 1.4S explosives, identified by Special Provision A165 in Table 3-1, are subject to Test Series 6 (d) of Part I of the UN Manual of Tests and Criteria (see ST/SG/AC.10/36/Add.2) to demonstrate that any hazardous effects arising from functioning are confined within the package. Evidence of a hazardous effect outside the package includes:

a) denting or perforation of the witness plate beneath the package;

- b) *a flash or flame capable of igniting such as a sheet of 80 ± 3 g/m² paper at a distance of 25 cm from the package;*
- c) *disruption of the package causing projection of the explosives contents; or*
- d) *a projection which passes completely through the packaging (a projection or fragment retained or stuck in the wall of the packaging is considered as non hazardous).*

The appropriate national authority may wish to take into account the expected effect of the initiator when assessing the results of the test, if these are expected to be significant when compared to the articles being tested. If there are hazardous effects outside the package, then the product is excluded from Compatibility Group S.

A165 This entry must not be used for transport on passenger aircraft when testing in accordance with the UN Manual of Tests and Criteria Test Series 6 (a), upon which classification was based, has shown evidence of a hazardous effect outside the package. This includes denting or perforation of the witness plate beneath the package. From 1 January 2010, for transport aboard passenger aircraft, this entry may only be used if the results of Test Series 6 (d) of Part I of the UN Manual of Tests and Criteria have demonstrated that any hazardous effects arising from functioning are confined within the package (see 2;1.4.2.1).

Note.— If the 6 (d) test is successfully completed before 1 January 2010, this entry may be used for transport on passenger aircraft.

1.2 The panel member from the United States appreciates the extensive work done by the UN Sub-Committee's explosives working group which led to these changes. The United States also participated in the discussions, and supports efforts to ensure that explosive substances and articles are appropriately classified. Classification of Class 1 substances and articles is particularly complex, and unlike other dangerous goods whose classification may be assigned by the shipper, many National regulations require the classification of explosives to be approved by the competent authority. The amendments adopted ultimately will lead to more consistent testing and interpretation of results by authorized testing laboratories, which will in turn ensure that more uniform classifications are made by competent authorities world-wide.

1.3 With regard to implementation of the new criteria, the fact that substances and articles may need to be retested should be carefully considered as retesting would affect a large volume of products, including components critical to use within the aviation industry transported as replacement parts by operators.

1.4 Many of the affected articles are manufactured in the US and classified by the US competent authority for the world-wide market. We have reviewed our explosive classification database to determine the impact that this new test scheme will have on existing classifications performed in the US. The following is a summary of the numbers of 1.4S explosive classifications issued by the US related to the eight UN numbers:

UN Number	# Explosive Approvals
UN0323 Cartridges Power Device	1897
UN0366 Detonators for Ammunition	49

UN Number	# Explosive Approvals
UN0441 Charges, Shaped	877
UN0445 Charges, Explosive, Commercial	3
UN0455 Detonators, Non-Electric	68
UN0456 Detonators, Electric	200
UN0460 Charges, Bursting, Plastics Bonded	0
UN0500 Detonator, Assemblies, Non-Electric	61

1.5 Based on a long history of experience, it is believed that a phased implementation is necessary in order to address the review and reclassification of articles as applicable. Therefore we support the Panel’s decision to provide a transition to the application of this new test in SP 165. Our initial review indicates that 3 155 explosive classification approvals (EX #s) will be affected. Of those numbers, if the following review procedures are implemented, we estimate that 929 approvals may require additional review to either maintain the 1.4S classification or be reclassified. In this regard, the Panel member from the US would like to update the Panel on the US competent authority’s (US DOT’s) planned approach to implement this new provision:

- a) Identify the existing 1.4S classifications assigned to the eight UN numbers.
- b) Prioritize the review toward those classifications of highest concern. The US DOT is first considering UN0441 Charges, Shaped.
- c) Meet with the affected industries to view demonstrative testing to determine if basic classification principles can be applied based on the size or composition of the article. We believe that based on the demonstrative testing, the competent authority can establish guiding principles applicable to existing classifications. These principles would identify thresholds by which the competent authority can determine if the existing classification would meet the new requirement or if additional review is required.
- d) If additional review is required, the holder of the classification approval (shipper) will be required to submit a request for review to the US DOT. The US DOT will authorize continued use of the 1.4S classification based on:
 - 1) Test Series 6(a) results that clearly indicate that all hazardous effects arising from functioning were confined within the package;
 - 2) Test Series 6(d) performed in Canada or another State;
 - 3) Test Series 6(d) performed at an authorized lab in the United States. US DOT is working with authorized test labs to develop the capability to perform the Test Series 6 (d) test.

1.6 Based on Test Series 6(a) results or shipper knowledge, reclassification may be requested. In this case, shippers will provide US DOT a list of 1.4S items for which reclassification is requested. No additional testing may be necessary for these reclassification evaluations (since the

classification will be more conservative); however, the competent authority has discretion to request additional testing.

- a) US DOT is drafting guidance to the industry on how to apply for new explosive classifications.
- b) US DOT is developing internal procedures to handle new classification requests and regulatory amendments as necessary. US DOT may waive completion of the Test Series 6 (a) tests if the 6(d) has been successful accomplished.

2. **ACTION BY THE DGP-WG**

2.1 The DGP-WG is invited to consider the information presented in this paper with the view of providing feedback related to the successful implementation and/or challenges experienced by other States on this issue.

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