International Civil Aviation Organization

DGP/24-WP/48
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WORKING PAPER

DANGEROUS GOODS PANEL (DGP)

TWENTY-FOURTH MEETING

Montréal, 28 October to 8 November 2013

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 2015-2016 Edition

SPECIAL PROVISION A123

(Presented by J. McLaughlin)

SUMMARY

This working paper proposes to require an indication of compliance with Special Provision A123 only for those batteries exceeding 9 Volts.

Action by the DGP: The DGP is invited to revise Special Provision A123 to apply the "not restricted" statement and indication of the special provision number A123 only to batteries exceeding 9 Volts.

1. INTRODUCTION

1.1 Shippers must indicate on the air waybill when a substance or article is exempted from the requirements of the Technical Instructions by the prescribed conditions of a special provision. This requirement is intended to serve as an additional check on the shipper to ensure compliance.

1.2 Special Provision A123 applies to "Batteries, electric storage". Examples of such batteries are alkali-manganese, zinc-carbon, nickel-metal hydride and nickel-cadmium batteries. These batteries are widely available (AAA, AA, C, D, and 9 volt are most common size batteries) and are used in a variety of consumer devices such as flashlights, toys, games and smoke detectors. Prior to transport, these batteries and devices with installed batteries must be protected from short circuit and unintentional activation. The words not-restricted and the special provision number A123 must be provided on an air waybill when an air waybill is used.

1.3 The requirements of Special Provision A123 apply to all batteries and devices, including those that pose little to no risk in transportation (e.g. 1.5 volt alkaline batteries and devices powered by such batteries). Our experience with dry batteries (up to 9 Volts) indicates that undischarged dry batteries pose a hazard in transportation, but that hazard is negligible and can be minimized through short circuit protection, while spent or used dry cell batteries pose virtually no risk of generating a dangerous amount of heat or short circuits. The U.S. Hazardous Materials Regulations includes the provision of A123 (49 CFR §172.102 Special Provision A130), but applies the "not restricted" documentation requirement only to batteries exceeding 9 volts. The 9 volt threshold was based on test data demonstrating the effects of various types, sizes, and configurations of common consumer dry cell batteries when intentionally short circuited. The data represents the maximum temperature observed when undischarged alkaline and carbon zinc batteries; AA, AAA, D (1.5V) were placed randomly into a container, lantern (6V) battery sizes intentionally short circuited; and 12 D cell batteries connected in series (19.4V) and intentionally short circuited:

Battery Type	Maximum Temperature (Celsius)
Alkaline AA/AAA	28.5
Carbon Zinc AA/AAA	26.2
Alkaline Lantern	151.2
Carbon Zinc Lantern	137.8
D Cell connected in series (12 batteries)	109.4

1.4 Taking into account the data does not address all dry cell chemistries, and limited configurations and voltage levels, the U.S. DOT adopted a measured approach by applying the "not restricted" statement only to consignments containing batteries exceeding 9 volts. This addressed the practical challenges for additional documentation requirements on common small consumer batteries while maintaining focus on additional safety measures for larger batteries.

1.5 While it is important to ensure all batteries are protected from short circuits and devices protected from unintentional activation, the additional requirement to indicate compliance with Special Provision A123 appears unnecessarily burdensome in the case of low voltage dry cell batteries.

1.6 For dry batteries greater than 9 volts, a notification on an air waybill or other shipping document is appropriate. This threshold would apply the notification requirements to higher voltage batteries that pose a comparatively greater risk in transport if short circuited but would largely exempt individual consumers from this requirement.

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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 3

SPECIAL PROVISIONS

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Table 3-2. Special provisions

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A123	This entry applies to Batteries, electric storage, not otherwise listed in Table 3-1. Examples of such batteries are: alkali-manganese, zinc-carbon, nickel-metal hydride and nickel-cadmium batteries. Any electrical battery or battery-powered device, equipment or vehicle having the potential of a dangerous evolution of heat must be prepared for transport so as to prevent: a) a short circuit (e.g. in the case of batteries, by the effective insulation of exposed terminals; or, in the case of equipment, by disconnection of the battery and protection of exposed terminals); and b) unintentional activation. For a battery whose voltage exceeds 9 volts, ~~T~~the words “not restricted” and the special provision number A123 must be provided on the air waybill when an air waybill is issued.

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