International Civil Aviation Organization

DGP-WG/23-WP/3
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WORKING PAPER

DANGEROUS GOODS PANEL (DGP) WORKING GROUP MEETING (DGP-W/23)

Rio de Janeiro, Brazil, 15 to 19 May 2023

Agenda Item 2: Managing air-specific safety risks and identifying anomalies (REC-A-DGS-2025)
2.2: Develop proposals, if necessary, for amendments to the *Technical Instructions for the Safe Transport of Dangerous Goods by Air* (Doc 9284) for incorporation in the 2025-2026 Edition

REVISION TO SPECIAL PROVISION A190

(Presented by D. Brennan)

SUMMARY

This working paper proposes a revision to the wording of Special Provision A190 to clearly identify the two options available under the special provision. It clarifies that when Special Provision A190 is applied, Special Provision A2 is not applicable and clearly identifies that no packing instruction number is required on the dangerous goods transport document.

Action by the DGP-WG is in paragraph 2.

1. INTRODUCTION

1.1 Special Provision A190 sets out the provisions that apply to neutron radiation detectors that contain a quantity of boron trifluoride gas, which is a gas classified in Division 2.3 — Toxic gases. Boron trifluoride is normally forbidden for transport on both passenger aircraft and cargo aircraft only, although permitted on a cargo aircraft under an approval issued in accordance with Special Provision A2.

1.2 The provisions for neutron radiation detectors set out in Special Provision A190 are essentially in two parts: radiation detectors containing more than 1 g of boron trifluoride, which must be described on a dangerous goods transport document with packages fully marked and labelled, and radiation detectors containing 1 g or less of boron trifluoride, which are not subject to the Technical Instructions, provided that certain parts of the special provision are met. However, the structure of Special Provision A190 does not make these two parts clear.

1.3 There have also been reports of confusion by operators or their ground service providers where neutron radiation detectors offered for air transport in accordance with Special Provision A190

have been rejected as there is no reference to Special Provision A2 on the dangerous goods transport document and attached approval documents permitting transport on a cargo aircraft.

1.4 While the wording of Special Provision A190 identifies that neutron radiation detectors and systems may be transported on a cargo aircraft irrespective of being shown as forbidden/forbidden in Table 3-1, many acceptance personnel revert to the assignment of A2 against boron trifluoride and in the absence of an approval being provided, reject the consignment. Of note is that the panel has, for Special Provisions A211, A224 and A225 included specific text that the requirements of Special Provision A2 do not apply.

1.5 To address these issues, it is proposed to revise the wording of Special Provision A190 to clearly identify that there are two sets of conditions available based on the quantity of boron trifluoride in the radiation detectors and then to add a specific reference that when the requirements set out in A190 are met that Special Provision A2 does not apply.

2. ACTION BY THE DGP-WG

2.1 The DGP-WG is invited to consider the amendments proposed 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 3

SPECIAL PROVISIONS

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Table 3-2. Special provisions

TIs	*UN*	
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A190	(373)	Neutron radiation detectors containing non-pressurized boron trifluoride gas may be transported under this entry provided that: a) radiation detectors containing in excess of 1 gram of boron trifluride and radiation detection systems containing neutron radiation detectors as components may be transported on cargo aircraft in accordance with all applicable requirements of these Instructions irrespective of the indication of "forbidden" in columns 12 and 13 of Table 3-1. ~~and with~~ Each package must bear a "Toxic gas" and "Corrosive" hazard label~~s displayed on each package~~ irrespective of no labels being indicated in column 5, provided the following conditions are met: ~~a~~i) each radiation detector must meet the following conditions: ~~i~~1) the pressure in each neutron radiation detector must not exceed 105 kPa absolute at 20°C; ~~ii~~2) the amount of gas must not exceed 13 grams per detector; ~~iii~~3) each detector must be manufactured under a registered quality assurance programme; *Note.— The application of ISO 9001:2008 may be considered acceptable for this purpose.* ~~iv~~4) each neutron radiation detector must be of welded metal construction with brazed metal to ceramic feed through assemblies. These detectors must have a minimum burst pressure of 1 800 kPa as demonstrated by design type qualification testing; and ~~v~~5) each detector must be tested to a 1 x 10-10 cm3/s leaktightness standard before filling.

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~~b~~ii) radiation detectors transported as individual components must be transported as follows:

~~i~~1) they must be packed in a sealed intermediate plastic liner with sufficient absorbent or adsorbent material to absorb or adsorb the entire gas contents;

~~ii~~2) they must be packed in strong outer packagings and the completed package must be capable of withstanding a 1.8 m drop test without leakage of gas contents from detectors; and

~~iii~~3) the total amount of gas from all detectors per outer packaging must not exceed 52 grams.

~~c~~iii) completed neutron radiation detector systems containing detectors meeting the conditions of sub-paragraph ~~a)~~ i) must be transported as follows:

~~i~~1) the detectors must be contained in a strong sealed outer casing;

~~ii~~2) the casing must contain sufficient absorbent or adsorbent material to absorb or adsorb the entire gas contents; and

~~iii~~3) the completed system must be packed in strong outer packagings capable of withstanding a 1.8 m drop test without leakage unless a system's outer casing affords equivalent protection.

iv) ~~T~~transport in accordance with this special provision must be noted on the dangerous goods transport document. A packing instruction must not be shown on the transport document. If the above conditions are met, the requirements of Special Provision A2 do not apply.

b) ~~When transported as cargo,~~ neutron radiation detectors containing not more than 1 gram of boron trifluoride, including those with solder glass joints, and radiation detection systems containing such detectors, are not subject to these Instructions when carried as cargo, provided the following conditions are met:

i) ~~they~~ each radiation detector must meet the requirements in sub-paragraph a) i) and ~~are~~ be packed in accordance with sub-paragraph ~~b~~a) ii) ~~irrespective of the indication of "forbidden" in columns 10 to 13.~~;

ii) ~~R~~radiation detection systems containing such detectors ~~are not subject to these Instructions provided they are~~ must be packed in accordance with sub-paragraph ~~c~~a) iii) ~~.~~;

iii) ~~T~~the words "not restricted" and the special provision number A190 must be provided on the air waybill when an air waybill is used.

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