



WORKING PAPER

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

CLARIFICATION ON THE CONDITION OF “DANGEROUS EVOLUTION OF HEAT”

(Presented by D. Brennan)

SUMMARY

This working paper seeks clarification on the condition of “having the potential of dangerous evolution of heat” in Special Provisions A67, A123, A154, A164, A199, and Packing Instructions 967 and 970.

Action by the DGP-WG is in paragraph 2.

1. INTRODUCTION

1.1 The condition “having the potential of dangerous evolution of heat” can be found in Special Provisions A67, A123, A154, A164, A199, and Packing Instructions 967 and 970 in the Technical Instructions, which are related to various battery types. However, the determination of such condition is not defined, which results in different interpretations.

1.2 Taking Special Provision A123 as an example:

A123 This entry applies to Batteries, electric storage, not otherwise listed in Table 3-1. Examples of such batteries are: alkali-manganese, zinc-carbon 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.

The words “not restricted” and the special provision number A123 must be provided on the air waybill when an air waybill is issued.

Agreed to be added to A123 at DGP-WG/22 (see paragraph 4.3.4 of the DGP-WG/22 Report):

Devices such as radio frequency identification (RFID) tags, watches and temperature loggers, which are not capable of generating a dangerous evolution of heat, may be transported when intentionally active. When active, these devices must meet defined standards for electromagnetic radiation to ensure that the operation of the device does not interfere with aircraft systems. The devices must not be capable of emitting disturbing signals (such as buzzing alarms, strobe lights, etc.) during transport.

1.3 Some shippers interpret that as when their electrical battery or battery-powered device, equipment or vehicle are not having the potential of a dangerous evolution of heat, their products are then not subject to the Technical Instructions, and therefore, the words “not restricted” and the special provision number are not required to appear on the air waybill even when an air waybill is used.

1.4 With the new insertion on devices that can remain intentionally active during transport in Special Provisions A123 and A199 at the 2022 DGP Working Group Meeting (DGP-WG/22, Montréal, 21 to 25 November 2022) (see paragraph 4.3.4 of the DGP-WG/22 Report)), there is now further ambiguity in these special provisions on whether or not all relevant batteries are considered as having the potential of a dangerous evolution of heat.

1.5 The same condition about “having the potential of dangerous evolution of heat” is also mentioned in Special Provision A154, where lithium ion / metal cells or batteries, identified as being defective for safety reasons, that have the potential of producing a dangerous evolution of heat, fire or short circuit are forbidden for transport. With the same interpretation mentioned above, shippers can possibly classify their defective lithium batteries as not having the potential of producing a dangerous evolution of heat, and therefore, not subject to the restriction in Special Provision A154.

1.6 Although “dangerous evolution of heat” also appears in Part 1;2.1 and 1;3.1, the context is different and is not particularly related to electric storage, which does not create the same level of confusion.

2. ACTION BY THE DGP-WG

2.1 The DGP-WG is invited to discuss and clarify how “having the potential of dangerous evolution of heat” shall be interpreted and applied in the mentioned instances.

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