



WORKING PAPER

DANGEROUS GOODS PANEL (DGP)

TWENTY-EIGHTH MEETING

Virtual, 15 to 19 November 2021

Agenda Item 2: Managing air-specific safety risks and identifying anomalies (Ref: REC A DGS 2023)

2.2: Develop proposals, if necessary, for amendments to the *Supplement to the Technical Instructions for the Safe Transport of Dangerous Goods by Air* (Doc 9284SU) for incorporation in the 2023-2024 Edition

DRAFT AMENDMENTS TO THE SUPPLEMENT TECHNICAL INSTRUCTIONS TO ADDRESS AIR SPECIFIC SAFETY RISKS AND IDENTIFIED ANOMALIES AGREED AT DGP-WG/20 AND DGP-WG/21

(Presented by the Secretary)

SUMMARY

This working paper contains draft amendments to the Supplement to the Technical Instructions developed DGP-WG/21 (Virtual, 24 to 28 May 2021) to address air-specific safety risks and identified anomalies related to the transport of dangerous goods. There were no amendments to the Supplement to address air-specific safety risks and identified anomalies related to the transport to dangerous goods developed at DGP-WG/20 (Virtual, 19 to 23 October 2020) and

The DGP is invited to agree to the draft amendments in this working paper.

Part S-3

**DANGEROUS GOODS LIST,
SPECIAL PROVISIONS AND QUANTITY LIMITATIONS**

...

Chapter 1

GENERAL

...

1.2 QUANTITY LIMITATIONS AND PACKING REQUIREMENTS

...

DGP-WG/21-WP/25 (see paragraph 3.2.3.1 of DGP-WG/21 Report):

1.2.3 In the case of Special Provision A2, dangerous goods may be transported on ~~passenger and cargo aircraft~~ only with the prior approval of the appropriate authority of the State of Origin and the State of the Operator provided that the quantity per package does not exceed the quantity shown in Table S-3-1 and the packing is in accordance with the packing instruction indicated by Table S-3-1. The detailed requirements of the packing instruction are given in Part S-4, unless they already appear in the Technical Instructions. The consignment must be accompanied by a copy of the documents of approval showing the quantity limitations and packing and labelling requirements.

...

Part S-4

PACKING INSTRUCTIONS

...

Chapter 11

CLASS 9 – MISCELLANEOUS DANGEROUS GOODS

...

DGP-WG/21-WP/27, Revised (see paragraph 3.2.3.3 of DGP-WG/21 Report):

Packing Instruction 910

Cargo aircraft only

Introduction

This instruction applies to UN Nos. 3090, 3091, 3480 and 3481 annual production runs consisting of not more than 100 cells or batteries and to pre-production prototypes of cells or batteries when these prototypes are transported for testing.

General requirements

Part 4, Chapter 1 requirements of the Technical Instructions must be met.

Lithium ion cells and batteries [\(UN 3480\), including when packed with or contained in equipment \(UN 3481\)](#), must be offered for transport at a state of charge not exceeding 30 per cent of their rated capacity unless a higher state of charge is specifically approved by the States of Origin and the State of the Operator.

ADDITIONAL PACKING REQUIREMENTS

- Packagings, including large packagings, must meet the Packing Group I performance requirements.
- Cells and batteries must be protected against short circuit. Protection against short circuits includes, but is not limited to:
 - individual protection of the battery terminals;
 - inner packaging to prevent contact between cells and batteries;
 - batteries with recessed terminals designed to protect against short circuits; or
 - the use of an electrically non-conductive and non-combustible cushioning material to fill empty space between the cells or batteries in the packaging.

Cells and batteries, including when packed with equipment

- 1) Batteries and cells, including equipment, of different sizes, shapes or masses must be packaged in an outer packaging of a tested design type listed below provided the total gross mass of the package does not exceed the gross mass for which the design type has been tested. Rigid large packagings, as shown below, are permitted for a single battery, including when packed with ~~or contained in~~ equipment;
- 2) Each cell or battery must be individually packed in an inner packaging and placed inside an outer packaging;
- 3) Each inner packaging must be completely surrounded by sufficient non-combustible and electrically non-conductive thermal insulation material to protect against a dangerous evolution of heat;
- 4) Appropriate measures must be taken to minimize the effects of vibration and shocks and prevent movement of the cells or batteries within the package that may lead to damage and a dangerous condition during transport. Cushioning material that is non-combustible and electrically non-conductive may be used to meet this requirement;
- 5) Non-combustibility must be assessed according to a standard recognized in the State where the packaging is designed or manufactured;
- 6) A cell or battery with a net mass of more than 30 kg is limited to one cell or battery per outer packaging.

Cells and batteries contained in equipment

- 1) Equipment of different sizes, shapes or masses must be packed in an outer packaging of a tested design type listed below provided the total gross mass of the package does not exceed the gross mass for which the design

type has been tested. Rigid large packagings, as shown below, are permitted for a single item of equipment containing cells or batteries;

- 2) The equipment must be constructed or packaged in such a manner as to prevent accidental operation during transport;
- 3) Appropriate measures must be taken to minimize the effects of vibration and shocks and prevent movement of the equipment within the package that may lead to damage and a dangerous condition during transport. When cushioning material is used to meet this requirement it must be non-combustible and electrically non-conductive; and
- 4) Non-combustibility must be assessed according to a standard recognized in the State where the packaging is designed or manufactured.

Packagings not subject to Part 6 of the Technical Instructions

The equipment or batteries may be packed in outer packagings or protective enclosures not subject to the requirements of Part 6 of the Technical Instructions under conditions specified by the appropriate national authority. Additional conditions that may be considered in the approval process include, but are not limited to:

- 1) The equipment or the battery must be strong enough to withstand the shocks and loadings normally encountered during transport, including trans-shipment between unit load devices and between unit load devices and warehouses as well as any removal from a pallet or unit load device for subsequent manual or mechanical handling; and
- 2) The equipment or the battery must be fixed in cradles or crates or other handling devices in such a way that it will not become loose during normal conditions of transport.

OUTER PACKAGINGS

Boxes

Aluminium (4B)
Fibreboard (4G)
Natural wood (4C1, 4C2)
Other metal (4N)
Plywood (4D)
Reconstituted wood (4F)
Plastics (4H1, 4H2)
Steel (4A)

Drums

Aluminium (1B2)
Fibre (1G)
Other metal (1N2)
Plastics (1H2)
Plywood (1D)
Steel (1A2)

Jerricans

Aluminium (3B2)
Plastics (3H2)
Steel (3A2)

RIGID LARGE PACKAGINGS

Boxes

Aluminium (50B)
Fibreboard (50G)
Natural wood (50C)
Other metal (50N)
Plastics (50H)
Plywood (50D)
Reconstituted wood (50F)
Steel (50A)

...

DGP-WG/21-WP/26 (see paragraph 3.2.3.2 of DGP-WG/21 Report):

Part S-7

STATE'S RESPONSIBILITIES WITH RESPECT TO OPERATORS

...

Chapter 2

STORAGE AND LOADING

...

Chapter 2

STORAGE AND LOADING

...

2.2 LOADING ON PASSENGER AIRCRAFT

...

2.2.2 The dangerous goods may only be in the following classes or divisions:

...

Class 9 (except UN 1931, UN 1941, UN 1990, UN 2211, UN 2590, UN 3268, UN 3314, UN 3316, UN 3363, ~~UN~~
~~8000~~)

...

— END —