International Civil Aviation Organization

DGP-WG/23-WP/19
2/5/23

WORKING PAPER

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

Rio de Janeiro, Brazil, 15 to 19 May 2023

Agenda Item 1: Harmonizing ICAO dangerous goods provisions with UN Recommendations on the Transport of Dangerous Goods (REC-A-DGS-2025)

1.3: 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 2025-2026 Edition

DRAFT AMENDMENTS TO THE SUPPLEMENT TO THE TECHNICAL INSTRUCTIONS TO ALIGN WITH THE UN RECOMMENDATIONS

(Presented by the DGP Working Group on UN Harmonization)

SUMMARY

This working paper contains draft amendments to the Supplement to the Technical Instructions to reflect the decisions taken by the UN Committee of Experts on the Transport of Dangerous Goods and on the Globally Harmonized System of Classification and Labelling of Chemicals at its ninth session (Geneva, 9 December 2022).

Action by the DGP-WG: The DGP-WG is invited to agree to the draft amendments in this working paper.

Part S-3

DANGEROUS GOODS LIST, SPECIAL PROVISIONS AND QUANTITY LIMITATIONS

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Note.— Revisions to Table 3-1 of the Technical Instructions will automatically be reflected in related records included in the Supplement through the publishing process. The dangerous goods list entries shown here are records which contain values different to the values in Table 3-1.

Chapter 3

SUPPLEMENTARY DANGEROUS GOODS LIST

Class 2

Table S-3-1. Supplementary Dangerous Goods List (Class 2)

Name	*UN No.*	*Class or division*	*Sub-sidiary hazard*	*Labels*	*State varia-tions*	*Special provi-sions*	*UN packing group*	*Excepted quantity*	*Passenger and cargo aircraft*		*Cargo aircraft only*	
									Packing instruction	*Max. net quantity per package*	*Packing instruction*	*Max. net quantity per package*
1	*2*	*3*	*4*		*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*
. . .												
UN Model Regulations, Chapter 3.2, dangerous goods list (see ST/SG/AC.10/50/Add.1):												
Disilane	3553	2.1						E0	FORBIDDEN		200	xxx kg
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Chapter 4

SUPPLEMENTARY DANGEROUS GOODS LIST

Classes 3 to 9

Table S-3-1. Supplementary Dangerous Goods List (Classes 3 to 9)

Name	*UN No.*	*Class or division*	*Sub-sidiary hazard*	*Labels*	*State varia-tions*	*Special provi-sions*	*UN packing group*	*Excepted quantity*	*Passenger and cargo aircraft*		*Cargo aircraft only*	
									Packing instruction	*Max. net quantity per package*	*Packing instruction*	*Max. net quantity per package*
1	*2*	*3*	*4*		*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*
. . .												
UN Model Regulations, Chapter 3.2, dangerous goods list (see ST/SG/AC.10/50/Add.1):												
[Sodium ion batteries with organic electrolyte	3551	9		Miscellaneous — Lithium or sodium ion batteries		A88 A99 A154 A164 A183 [A201] A227 A228		E0	**FORBID**DEN		See [965] [9XX]]	
Trifluoromethyltetrazole sodium salt in acetone with not less than 68% acetone, by mass	3555	3		Liquid flammable		A40	II	E0	**FORBID**DEN		3XX	xx L
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Part S-4

PACKING INSTRUCTIONS

(ADDITIONAL INFORMATION FOR PART 4 OF THE TECHNICAL INSTRUCTIONS)

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Chapter 4

CLASS 2 — GASES

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UN Model Regulations, Chapter 3.2, dangerous goods list (see ST/SG/AC.10/50/Add.1):

Packing Instruction 200

For cylinders, the general packing requirements of 4;1.1 and 4;4.1.1 must be met.

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Table 2. LIQUEFIED GASES AND DISSOLVED GASES

UN No.	Name and description	Class or Division	Subsidiary hazard	LC_{50} ml/m³	Cylinders	Test period, years	Test pressure, bar	Filling ratio	Special packing provisions
. . .									
1032	**Dimethylamine, anhydrous**	2.1			X	10	10	0.59	b
1033	**Dimethyl ether**	2.1			X	10	18	0.58	
3553	**Disilane**	2.1			X	10	225	0.39	q
1035	**Ethane**	2.1			X	10	95 120 300	0.25 0.30 0.40	

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Chapter 4

CLASS 2 — GASES

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UN Model Regulations, Chapter 4.1, 4.1.4.1, P303 (see ST/SG/AC.10/50/Add.1)

Draft:

[Packing Instruction 3XX

This instruction applies to UN No. 3555.

The following packagings are authorized, provided that the general provisions of 4;1.1.1 and 4;1.1.2 as well as 4;3.3.1.7 are met:

Plastics drum non-removeable head (1H1) of maximum capacity 250 L.

Additional requirements

— The packagings must be transported in an upright position.
— Packagings must be lead free.]

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Chapter 11

CLASS 9 — MISCELLANEOUS DANGEROUS GOODS

UN Model Regulations, Chapter 4.1, 4.1.4.1, P910 (see ST/SG/AC.10/50/Add.1)

Packing Instruction 910

Cargo aircraft only

Introduction

This packing instruction applies to UN Nos. 3090, 3091, 3480 ~~and~~, 3481, 3551 and 3552 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 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) The ~~N~~non-combustibility of the thermal insulation material and the cushioning material 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;

Packing Instruction 910

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) The ~~N~~non-combustibility of the thermal insulation material and the cushioning material 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.

Note.— The authorized packagings may exceed a net mass of 400 kg (see 4;2.3 of the Technical Instructions).

OUTER PACKAGINGS

Boxes	*Drums*	*Jerricans*
Aluminium (4B)	Aluminium (1B2)	Aluminium (3B2)
Fibreboard (4G)	Fibre (1G)	Plastics (3H2)
Natural wood (4C1, 4C2)	Other metal (1N2)	Steel (3A2)
Other metal (4N)	Plastics (1H2)	
Plywood (4D)	Plywood (1D)	
Reconstituted wood (4F)	Steel (1A2)	
Plastics (4H1, 4H2)		
Steel (4A)		

RIGID LARGE PACKAGINGS

Boxes

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

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