



WORKING PAPER

**DANGEROUS GOODS PANEL (DGP)
WORKING GROUP MEETING (DGP-WG/21)**

Virtual Meeting, 24 to 28 May 2021

Agenda Item 2: Managing air-specific safety risks and identifying anomalies

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 2023-2024 Edition

ALLOWANCE FOR LARGE ARTICLES CONTAINING DANGEROUS GOODS N.O.S.

(Presented by D. Brennan and T. Muller)

SUMMARY

This working paper proposes a revision to the entries for UN 3538 — **Articles containing non-flammable, non-toxic gas, n.o.s.** and UN 3548 — **Articles containing miscellaneous dangerous goods, n.o.s.** to add a new special provision against each entry to allow for transport on both passenger aircraft and cargo aircraft provided that the article contains only a Division 2.2 gas without a subsidiary hazard or an environmentally hazardous substance respectively. It is also proposed to adopt new packing instructions for these articles.

Action by the DGP-WG is in paragraph 22.

1. INTRODUCTION

1.1 At the DGP Working Group Meeting in 2020 (DGP-WG/20, 19 to 23 October 2020) two working papers were presented proposing revisions to the Technical Instructions to permit the transport of large articles containing dangerous goods (see paragraph 3.1.2.1 of the DGP-WG/21 Report). One proposed revisions that would permit the transport of large articles containing environmentally hazardous substances, such as aircraft landing gear struts filled with hydraulic fluid and the other proposed revisions that would permit the transport of large articles containing a non-flammable, non-toxic gas, specifically new types of magnetic resonance imaging (MRI) scanners containing compressed helium.

1.2 There was general support for the proposals in principle but concerns at the details in what was being proposed. For the articles containing the Division 2.2 gas there was concern that the proposal did not adequately address the standards applied to the gas containment that would ensure the

appropriate level of safety in air transport. It was also suggested that any proposal should avoid the addition of new entries to Table 3-1.

1.3 Based on the comments received additional requirements have been developed to address an appropriate equivalent safety level in air transport and have been incorporated in the proposed packing instructions.

2. ACTION BY THE DGP-WG

2.1 The DGP-WG is invited to consider the proposals set out in the appendix to this working paper.

APPENDIX

PROPOSED AMENDMENT TO PARTS 3, 4 AND 5 OF THE TECHNICAL INSTRUCTIONS

Part 3

**DANGEROUS GOODS LIST,
SPECIAL PROVISIONS AND
LIMITED AND EXCEPTED QUANTITIES**

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Table 3-1. Dangerous Goods List

Name	UN No.	Class or division	Subsidiary hazard	Labels	State variations	Special provisions	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
Articles containing miscellaneous dangerous goods, n.o.s.*	3548	9	See 2;0.6	Miscellaneous		A2 <u>AXX</u>			FORBIDDEN		FORBIDDEN	
Articles containing non-flammable, non toxic gas, n.o.s.*	3538	2.2	See 2;0.6	Gas non-flammable		A2 <u>AXY</u>			FORBIDDEN		FORBIDDEN	

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Chapter 3

SPECIAL PROVISIONS

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Table 3-2. Special provisions

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AXX

UN 3548 — Articles containing miscellaneous dangerous goods, n.o.s. may be transported on passenger and cargo aircraft irrespective of the indication of "forbidden" in columns 10 to 13 of Table 3-1, provided:

- a) the only dangerous goods contained in the article is an environmentally hazardous substance;
- b) the articles are packed in accordance with Packing Instruction 9XX; and
- c) reference to Special Provision AXX is made on the dangerous goods transport document as required by Part 5;4.1.5.8

All other provisions of these Instructions apply. If the above conditions are met, the requirements of Special Provision A2 do not apply.

AXY

UN 3538 — Articles containing non-flammable, non-toxic gas, n.o.s. may be transported on passenger and cargo aircraft irrespective of the indication of "forbidden" in columns 10 to 13 of Table 3-1, provided:

- a) the only dangerous goods contained in the article is a Division 2.2 gas without a subsidiary hazard, excluding liquefied, refrigerated gases;
- b) the articles are packed in accordance with Packing Instruction 2XX; and
- c) reference to Special Provision AXY is made on the dangerous goods transport document as required by Part 5;4.1.5.8.

All other provisions of these Instructions apply. If the above conditions are met, the requirements of Special Provision A2 do not apply.

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Part 4**PACKING INSTRUCTIONS**

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Chapter 4**CLASS 2 — GASES**

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Packing Instruction 2XXPassenger and cargo aircraft for UN 3538 only**Introduction**

This packing instruction is only permitted for articles which do not have an existing proper shipping name and which contain only gases of Division 2.2 without a subsidiary hazard, excluding refrigerated liquefied gases, where the quantity of the Division 2.2 gas exceeds the quantity limits for UN 3363 as prescribed in Packing instruction 962.

General requirements

Part 4:1.1.1, 4:1.1.3, 4:1.1.12 and 4:2 requirements must be met.

<u>UN number and proper shipping name</u>	<u>Maximum net quantity of gas — passenger</u>	<u>Maximum net quantity of gas — cargo</u>
<u>UN 3538 Articles containing non-flammable, non-toxic gas, n.o.s.*</u>	<u>75 kg</u>	<u>150 kg</u>

ADDITIONAL PACKING REQUIREMENTS

- Packagings must meet Packing Group II performance requirements.
- Receptacles within articles containing gases must meet the requirements of 4:4.1.1 and 6:5 as appropriate or meet a national or regionally recognized pressure receptacle standard such as the European Pressure Equipment Directive (2014/68/EU) or ASME Section VII, Div.1 R that is capable of providing an equivalent level of protection as Packing Instructions 200 or 219.
- Articles must be packed to prevent movement and inadvertent operation during normal conditions of transport.

ROBUST ARTICLES

Robust articles may alternatively be transported in strong outer packagings constructed of suitable material and of adequate strength and design in relation to the packaging capacity and its intended use. The packagings must achieve a level of protection that is at least equivalent to that provided by 6:1. Articles may be transported unpackaged or on pallets when the dangerous goods are afforded equivalent protection by the article in which they are contained. In such cases the additional requirement related to Packing Group II performance requirements and the requirement for UN specification packagings do not apply.

OUTER PACKAGINGS (see 6:3.1)Boxes

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

Drums

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

Jerricans

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

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Chapter 11

CLASS 9 — MISCELLANEOUS DANGEROUS GOODS

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Packing Instruction 9XX

Passenger and cargo aircraft for UN 3548 only

Introduction

This packing instruction is only permitted for articles which do not have an existing proper shipping name and which contain only environmentally hazardous substances where the quantity of the environmentally hazardous substance in the article exceeds 5 L or 5 kg.

General requirements

Part 4:1.1.1, 4:1.1.3, [4:1.1.4], 4:1.1.12 and 4:2 requirements must be met.

<u>UN number and proper shipping name</u>	<u>Quantity — passenger</u>	<u>Quantity — cargo</u>
<u>UN 3548 Articles containing miscellaneous dangerous goods, n.o.s.*</u>	<u>No limit</u>	<u>No limit</u>

ADDITIONAL PACKING REQUIREMENTS

- Packagings must meet Packing Group II performance requirements.
- Receptacles containing liquids or solids within articles must be constructed of suitable materials and secured in the article in such a way that, under normal conditions of transport, they cannot break, be punctured or leak their contents into the article itself or the outer packaging.
- Receptacles containing liquids with closures must be packed with their closures correctly oriented. The receptacles must in addition conform to the internal pressure test provisions of 6:4.5.
- Receptacles that are liable to break or be punctured easily, such as those made of glass or of certain plastics materials must be properly secured, and any leakage of the contents must not substantially impair the protective properties of the article or of the outer packaging.
- Where there is no receptacle within the article, the article must fully enclose the dangerous goods and prevent their release under normal conditions of transport.
- Articles must be packed to prevent movement and inadvertent operation during normal conditions of transport.

ROBUST ARTICLES

Robust articles may alternatively be transported in strong outer packagings constructed of suitable material and of adequate strength and design in relation to the packaging capacity and its intended use. The packagings must achieve a level of protection that is at least equivalent to that provided by 6:1. Articles may be transported unpackaged or on pallets when the dangerous goods are afforded equivalent protection by the article in which they are contained. In such cases the additional requirement related to Packing Group II performance requirements and the requirement for UN specification packagings do not apply.

OUTER PACKAGINGS (see 6:3.1)Boxes

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

Drums

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

Jerricans

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

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Part 5

SHIPPER'S RESPONSIBILITIES

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Chapter 4

DOCUMENTATION

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4.1.5 Information required in addition to the dangerous goods description

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4.1.5.8 Additional requirements

4.1.5.8.1 The dangerous goods transport document must also contain:

- a) except for radioactive material, the packing instruction applied. For shipments of lithium batteries prepared in accordance with Section IB of Packing Instruction 965 or Packing Instruction 968, the letters "IB" must be added following the packing instruction number;

*Note.— Packing Instruction 622 from the 2019-2020 Edition of these Instructions was renumbered as 621 in this edition. Until 31 March 2021, Packing Instruction 622 may continue to be indicated on the dangerous goods transport document when applied to UN 3291, **Biomedical waste, n.o.s., Clinical waste, unspecified, n.o.s., Medical waste, n.o.s., or Regulated medical waste, n.o.s.***

- b) when applicable, reference to Special Provision A1, A2, A4, A5, A51, A78, A190, A191, A201, A202, A208, A211-~~or~~, A212, AXX or AXY;

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