



WORKING PAPER

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

Virtual Meeting, 24 to 28 May 2021

- Agenda Item 1: Harmonizing ICAO dangerous goods provisions with UN Recommendations on the Transport of Dangerous Goods**
- 1.2: 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**

DRAFT AMENDMENTS TO PART 1 OF 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 Part 1 of 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, 11 December 2020).

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

FOREWORD

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GENERAL PRINCIPLES USED IN DEVELOPING THE PROVISIONS OF THE TECHNICAL INSTRUCTIONS

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Consequential to the addition of a definition for the IAEA Regulations in 1;3:

The provisions are based on material produced by the United Nations, which is contained in the Recommendations on the Transport of Dangerous Goods (ST/SG/AC.10/1), the Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria (ST/SG/AC.10/11), and, for radioactive materials, the International Atomic Energy Agency Regulations for the Safe Transport of Radioactive Material, ~~2012~~ 2018 Edition, ~~IAEA Safety Standards Series No. SSR-6, IAEA, Vienna 2012~~. Using a United Nations system ensures compatibility between the international modes of transport so a consignment may be carried by more than one mode without intermediate reclassification and repacking. Modifications are made to the system to take account of the peculiarities of air transport, while keeping in mind the need to ensure modal compatibility.

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Part 1

GENERAL

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Chapter 1

SCOPE AND APPLICABILITY

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UN Model Regulations, Chapter 1.1, Note 1 (see ST/SG/AC.10/48/Add.1)

Note.— Recommendations on Tests and Criteria, which are incorporated by reference into certain provisions of these Instructions, are published as a separate Manual (United Nations Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria) (ST/SG/AC.10/11/Rev.7 [and Amend.1](#)), the contents of which are:

Part I. Classification procedures, test methods and criteria relating to explosives of Class 1;

Part II. Classification procedures, test methods and criteria relating to self-reactive and polymerizing substances of Division 4.1 and organic peroxides of Division 5.2;

Part III. Classification procedures, test methods and criteria relating to substances or articles of Class 2, Class 3, Class 4, Division 5.1, Class 8 and Class 9;

Part IV. Test methods concerning transport equipment; and

Part V. Classification procedures, test methods and criteria relating to sectors other than transport.

Appendices. Information common to a number of different types of tests and national contacts for test details.

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Chapter 3

GENERAL INFORMATION

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3.1 DEFINITIONS

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UN Model Regulations, Chapter 1.2.1 (see ST/SG/AC.10/48/Add.1)

Bundle of cylinders. Not permitted for air transport. ~~An assembly of cylinders~~ A pressure receptacle comprising an assembly of cylinders or cylinder shells that are fastened together and which are interconnected by a manifold and transported as a unit.

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Closure. A device which closes an opening in a receptacle.

Revisions to text in UN Model Regulations of an editorial nature:

Note.— Examples of closures for pressure receptacles are valves, pressure relief devices, pressure gauges or level indicators.

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Closed ~~C~~ cryogenic receptacle. ~~A transportable,~~ thermally insulated pressure receptacle for refrigerated liquefied gases, of a water capacity of not more than 1 000 litres.

Cylinder. ~~A transportable~~ pressure receptacle of a water capacity not exceeding 150 litres.

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GHS. ~~The seventh,~~ ninth revised edition of the *Globally Harmonized System of Classification and Labelling of Chemicals*, published by the United Nations as document ST/SG/AC.10/30/Rev.~~7~~9.

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IAEA Regulations for the Safe Transport of Radioactive Material. One of the editions of those Regulations, as follows:

- a) for the 1985, 1985 (as amended 1990) editions: IAEA Safety Series No. 6;
- b) for the 1996 edition: IAEA Safety Series No. ST-1;
- c) for the 1996 (revised) edition: IAEA Safety Series No. TS-R-1 (ST-1, Revised);
- d) for the 1996 (as amended 2003), 2005, 2009 editions: IAEA Safety Standards Series No. TS-R-1;
- e) for the 2012 edition: IAEA Safety Standards Series No. SSR-6; or
- f) for the 2018 edition: IAEA Safety Standards Series No. SSR-6 (Rev.1).

Inner vessel. For a closed cryogenic receptacle, the pressure vessel intended to contain the refrigerated liquefied gas.

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1. UN refers to “Liquid”, singular, so DGP-WG/UN Harmonization recommends modifying Instructions. However, the definition aligns with plural form of “liquid”, so Secretariat proposes modifying it to align with singular.
2. “European” included in UN Model Regulations, but it was removed from the title of ADR, so the reference in the following aligns with that title:

Liquids. A substance classified as D dangerous goods which at 50°C ~~have~~ has a vapour pressure of not more than 300 kPa (3 bar), which ~~are~~ is not completely gaseous at 20°C and at a pressure of 101.3 kPa, and which ~~have~~ has a melting

point or initial melting point of 20°C or less at a pressure of 101.3 kPa. A viscous substance for which a specific melting point cannot be determined must be subjected to the ASTM D 4359-90 test; or to the test for determining fluidity (penetrometer test) prescribed in section 2.3.4 of Annex A of the ~~European Agreement Concerning the International Carriage of Dangerous Goods by Road (ADR)~~ (United Nations publication: ECE/TRANS/257/300 (Sales No. E.4621.VIII.1)).

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UN Model Regulations, Chapter 1.2.1 (see ST/SG/AC.10/1/Rev.21, Vol. I and II Corrigendum 1)

Manual of Tests and Criteria. The ~~sixth~~ seventh revised edition of the United Nations publication ~~entitled Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria~~ bearing this title (ST/SG/AC.10/11/-Rev.7 and Amend.1).

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UN Model Regulations, , Chapter 1.2.1 (see ST/SG/AC.10/48/Add.1)

Metal hydride storage system. A single complete hydrogen storage system, including a pressure receptacle shell, metal hydride, pressure relief device, shut-off valve, service equipment and internal components used for the transport of hydrogen only.

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Pressure drum. (Not permitted for air transport.) A welded ~~transportable~~ pressure receptacle of a water capacity exceeding 150 litres and of not more than 1 000 litres (e.g. cylindrical receptacles equipped with rolling hoops, spheres on skids).

Pressure receptacle. A transportable receptacle intended for holding substances under pressure including its closure(s) and other service equipment and a collective term that includes cylinders, tubes, pressure drums, closed cryogenic receptacles, metal hydride storage systems, bundles of cylinders and salvage pressure receptacles.

Pressure receptacle shell. A cylinder, a tube, a pressure drum or a salvage pressure receptacle without its closures or other service equipment, but including any permanently attached device(s) such as a neck ring or a foot ring.

Note.— The terms “cylinder shell”, “pressure drum shell” and “tube shell” are also used.”

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Recycled plastic material. Material recovered from used industrial packagings that has been cleaned and prepared for processing into new packagings. The specific properties of the recycled material used for production of new packagings must be assured and documented regularly as part of a quality assurance programme recognized by the appropriate national authority. The quality assurance programme must include a record of proper pre-sorting and verification that each batch of recycled plastic material has the proper melt flow rate, density, and tensile yield strength, consistent with that of the design type manufactured from such recycled material. This necessarily includes knowledge about the packaging material from which the recycled plastic has been derived, as well as awareness of the prior contents of those packagings if those prior contents might reduce the capability of new packagings produced using that material. In addition, the packaging manufacturer's quality assurance programme must include performance of the mechanical design type test in Part 6, Chapter 4 on packagings manufactured from each batch of recycled plastic material. In this testing, stacking performance may be verified by appropriate dynamic compression testing rather than static load testing.

Note.— ISO 16103:2005 “Packaging — Transport packages for dangerous goods — Recycled plastics material”, provides additional guidance on procedures to be followed in approving the use of recycled plastics material. These guidelines have been developed based on the experience of the manufacturing of drums and jerricans from recycled plastics material and as such may need to be adapted for other types of packagings, IBCs and large packagings made of recycled plastics material.

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Service equipment. For pressure receptacles, includes:

a) closure(s);

b) manifold(s);

c) piping;

d) porous, absorbent or adsorbent material; and

e) any structural devices such as those used for handling.

Tube. (Not permitted for air transport.) A ~~transportable~~ pressure receptacle of seamless or composite construction having a water capacity exceeding 150 litres but not more than 3 000 litres.

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Proposed to add to serve the same purpose as the definition for Manual of Tests and Criteria, i.e. the revision number will not need to be modified each time the document is referenced throughout the Instructions each biennium because the modification will be made here. If DGP-WG/21 agrees, references throughout the Technical Instructions will be modified in the working papers for UN harmonization to DGP/28.

Model Regulations. The twenty-second revised edition of the United Nations publication entitled Recommendations on the Transport of Dangerous Goods, Model Regulations (ST/SG/AC.10/1/Rev.21).

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Working pressure. Either:

a) for a compressed gas, the settled pressure of a compressed gas at a reference temperature of 15°C in a full pressure receptacle;

b) for UN 1001 acetylene, dissolved, the calculated settled pressure at a uniform reference temperature of 15°C in an acetylene cylinder containing the specified solvent content and the maximum acetylene content; or

c) for UN 3374 acetylene, solvent free, the working pressure which was calculated for the equivalent cylinder for UN 1001 acetylene, dissolved.

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Chapter 5

DANGEROUS GOODS SECURITY

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UN Model Regulations, Chapter 1.2.1 (see ST/SG/AC.10/48/Add.1)

5.5 RADIOACTIVE MATERIAL

For radioactive material, the provisions of this Chapter are deemed to be complied with when the provisions of the Convention on Physical Protection of Nuclear Material¹ (INFCIRC/274/Rev.1, IAEA, Vienna (1980)), and the IAEA circular on "Nuclear Security Recommendations on Physical Protection of Nuclear Material and Nuclear Facilities"² (INFCIRC/225/Rev.5, IAEA, Vienna (2011)), are applied.

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1. INFCIRC/274/Rev.1, IAEA, Vienna (1980).

2. INFCIRC/225/Rev.5, IAEA, Vienna (2011).

Chapter 6

GENERAL PROVISIONS CONCERNING RADIOACTIVE MATERIAL

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6.1 SCOPE AND APPLICATION

Consequential to the addition of a definition for the IAEA Regulations in 1;3:

6.1.1 These Instructions establish standards of safety which provide an acceptable level of control of the radiation, criticality and thermal hazards to people, property and the environment that are associated with the transport of radioactive material. These Instructions are based on the IAEA Regulations for the Safe Transport of Radioactive Material, (2018 Edition), ~~IAEA Safety Standards Series No. SSR-6 (Rev.1), IAEA, Vienna (2018)~~. Explanatory material can be found in *Advisory Material for the IAEA Regulations for the Safe Transport of Radioactive Material (2018 Edition)*, Safety Standard Series No. SSG-26 (Rev.1), IAEA, Vienna (2019). The prime responsibility for safety must rest with the person or organization responsible for facilities and activities that give rise to radiation risk.

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