International Civil Aviation Organization

DGP-WG/19-WP/11
18/3/19

WORKING PAPER

DANGEROUS GOODS PANEL (DGP)
WORKING GROUP MEETING (DGP-WG/19)

Montréal, 1 to 5 April 2019

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 2021-2022 Edition

DRAFT AMENDMENTS TO THE TECHNICAL INSTRUCTIONS TO ALIGN WITH THE UN RECOMMENDATIONS — PART 1

(Presented by the Secretary)

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, 7 December 2018).

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

Part 1

GENERAL

Chapter 1

SCOPE AND APPLICABILITY

Parts of this Chapter are affected by State Variations AE 3, AE 8, BE 2, BE 4, BR 4, CA 6, CH 3, DE 1, DE 4, DK 2, FR 2, GH 3, HR 3, HR 4, HR 5, IN 1, IR 1, IT 1, IT 5, KH 1, NL 6, RO 1, RO 2, RO 3, US 1, VC 1, VC 2, VC 3, VE 1, VE 4, VE 8, VU 2;
see Table A-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.6 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;

For languages other than English: There may be a need for amendment to the following for the sake of alignment with 1.1 of the UN Model Regulations, (see ST/SG/AC.10/46/Add.1), e.g. French version it should read:

1.1 Sous le Nota 1 des dispositions générales, à la quatrième partie, remplacer « au matériel de transport » par « aux équipements de transport ».

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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1.1.5 General exceptions

1.1.5.1 Except for 7;4.2, these Instructions do not apply to dangerous goods carried by an aircraft where the dangerous goods are:

a) to provide, during flight, medical aid to a patient when those dangerous goods:

1) have been placed on board with the approval of the operator; or

2) form part of the permanent equipment of the aircraft when it has been adapted for specialized use;

providing that:

1) gas cylinders have been manufactured specifically for the purpose of containing and transporting that particular gas;

2) equipment containing wet cell batteries is kept and, when necessary, secured in an upright position to prevent spillage of the electrolyte;

Note.— For dangerous goods that passengers are permitted to carry as medical aid, see 8;1.1.2.

b) to provide, during flight, veterinary aid or a humane killer for an animal;

≠ c) for dropping in connection with agricultural, horticultural, forestry, ice jam control and landslide clearance or pollution control activities;

\+ d) for dropping or triggering in connection with avalanche control activities;

≠ e) to provide, during flight, or related to the flight, aid in connection with search and rescue operations;

≠ f) vehicles carried in aircraft designed or modified for vehicle ferry operations and all of the following requirements are met:

1) authorization has been given by the appropriate authorities of the States concerned, and such authorities have prescribed specific terms and conditions for the particular operator's operation;

2) vehicles are secured in an upright position;

3) fuel tanks are so filled as to prevent spillage of fuel during loading, unloading and transit; and

4) adequate ventilation rates are maintained in the aircraft compartment in which the vehicle is carried;

For French version: There may be a need for amendment to the following for the sake of alignment with 1.1.1.2 (a) of the UN Model Regulations, (see ST/SG/AC.10/46/Add.1), e.g.

1.1.1.2 a) Remplacer « engins de transport » par « matériels de transport ». Dans le nota 3, remplacer « moyen de transport » par « matériel de transport »

≠ g) required for the propulsion of the means of transport or the operation of its specialized equipment during transport (e.g. refrigeration units) or that are required in accordance with the operating regulations (e.g. fire extinguishers) (see 2.2).

Note.— This exception is only applicable to the means of transport performing the transport operation.

≠ h) contained within items of excess baggage being sent as cargo provided that:

1) the excess baggage has been consigned as cargo by or on behalf of a passenger;

2) the dangerous goods may only be those that are permitted by and in accordance with 8;1.1.2 to be carried in checked baggage;

3) the excess baggage is marked with the words "Excess baggage consigned as cargo".

UN Model Regulations, 1.1.1.2 (see ST/SG/AC.10/46/Add.1)

Secretariat Note.— The following note added under 1.1.1.2 of the UN Model Regulations (corresponding to 1;1.1.5.1 of the Instructions) and the new COMAT-related provisions referred to which are included in 5.5 of the Model Regulations (corresponding to 1;2.2 of the Instructions) will be reviewed by the new specific working group of the Flight Operations Panel (FLTOPSP). UN Provisions:

1.1.1.2 Add a new note 4 as follows:

"***NOTE 4***: *For dangerous goods in equipment in use or intended for use during transport, see 5.5.4."*

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5.5.4 Dangerous goods in equipment in use or intended for use during transport

5.5.4.1 Dangerous goods (e.g. lithium batteries, fuel cell cartridges) contained in equipment such as data loggers and cargo tracking devices, attached to or placed in packages, overpacks, containers or load compartments are not subject to any provisions of these Regulations other than the following:

(a) the equipment shall be in use or intended for use during transport;

(b) the contained dangerous goods (e.g. lithium batteries, fuel cell cartridges) shall meet the applicable construction and test requirements specified in these Regulations; and

(c) the equipment shall be capable of withstanding the shocks and loadings normally encountered during transport.

5.5.4.2 When such equipment containing dangerous goods is transported as a consignment, the relevant entry of the Dangerous Goods List in Chapter 3.2 shall be used and all applicable provisions of these Regulations shall apply."

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Chapter 3

GENERAL INFORMATION

Parts of this Chapter are affected by State Variation BE 1; see Table A-1

3.1 DEFINITIONS

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Designated postal operator. Any governmental or non-governmental entity officially designated by a Universal Postal Union (UPU) member country to operate postal services and to fulfil the related obligations arising from the acts of the UPU Convention on its territory.

UN Model Regulations, 1.2.1 (see ST/SG/AC.10/46/Add.1)

Dose rate. The ambient dose equivalent or the directional dose equivalent, as appropriate, per unit time, measured at the point of interest.

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UN Model Regulations, 1.2.1 (see ST/SG/AC.10/46/Add.1)

~~***Radiation level.*** For the transport of radioactive material, the corresponding dose rate expressed in millisieverts per hour or microsieverts per hour.~~

UN Model Regulations, 1.2.1 (see ST/SG/AC.10/46/Add.1)

Secretariat Note.— The definition for SADT was added to the Model Regulations as revised. The references to an IBC and a portable tank are proposed for addition to the definition in the TIs to align with the Model Regulations despite the fact they are not normally permitted for air transport and would not be permitted for substances for which an SADT would apply. A note is proposed for addition after the definition to specify that these packagings are not permitted. This is in line with the decision made at DGP/24 to include references to terms in definitions even if they are not permitted for air transport (see paragraph 2.1.1.2 of the DGP/24 report).

Self-accelerating decomposition temperature (SADT). The lowest temperature at which self-accelerating decomposition may occur ~~with~~ in a substance in the packaging, IBC or portable tank as ~~used in~~ offered for transport. The SADT must be determined in accordance with the test procedures given in Part II, Section 28 of the *Manual of Tests and Criteria*.

Note.— IBC and portable tanks are not permitted for transport by air unless otherwise provided for in these Instructions.

UN Model Regulations, 1.2.1 (see ST/SG/AC.10/46/Add.1)

Self-accelerating polymerization temperature (SAPT). The lowest temperature at which self-accelerating polymerization may occur with a substance in the packaging as offered for transport. The SAPT must be determined in accordance with the test procedures established for the self-accelerating decomposition temperature for self-reactive substances in accordance with Part II, Section 28 of the UN *Manual of Tests and Criteria.*

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UN Model Regulations, 1.2.1 (see ST/SG/AC.10/46/Add.1)

Secretariat Note.—	The following definition is included in Part 1;3 and Part 2;7. The new text proposed for the sake of alignment with the UN Model Regulations already appears in Part 2, except for the reference to "SCO-III" which is being added to the 21st revised edition of the Model Regulations. DGP is invited to consider whether the omission of "or to unpackaged LSA-I or SCO-I" in Part 1 and not in Part 2 of the Technical Instructions was intentional and, if not, to consider which definition should apply. It is suggested the text should be added to the definition, as this would be in line with the decision made at DGP/24 to include references to terms in definitions even if they are not permitted for air transport (see paragraph 2.1.1.2 of the DGP/24 report).

Transport index (TI) assigned to a package, overpack or freight container*, or to unpackaged LSA-I, SCO-I or SCO-III****.*** For the transport of radioactive material, a number which is used to provide control over radiation exposure.

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Chapter 5

DANGEROUS GOODS SECURITY

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5.3 PROVISIONS FOR HIGH CONSEQUENCE DANGEROUS GOODS

5.3.1 Definition of high consequence dangerous goods

5.3.1.1 High consequence dangerous goods are those which have the potential for misuse in a terrorist event and which may, as a result, produce serious consequences such as mass casualties, mass destruction or, particularly for Class 7, mass socio-economic disruption.

5.3.1.2 An indicative list of high consequence dangerous goods in classes and divisions other than Class 7 is given in Table 1-7.

UN Model Regulations, Table 1.4.1 (see ST/SG/AC.10/46/Add.1)

Table 1-7. Indicative list of high consequence dangerous goods

Class 1 Division 1.1 explosives
Class 1 Division 1.2 explosives
Class 1 Division 1.3 compatibility group C explosives
Class 1 Division 1.4 UN Nos. 0104, 0237, 0255, 0267, 0289, 0361, 0365, 0366, 0440, 0441, 0455, 0456~~ and~~, 0500, 0512 and 0513
Class 1 Division 1.5 explosives
Class 1 Division 1.6 explosives
Division 2.3 toxic gases (excluding aerosols)
Class 3 desensitized explosives
Division 4.1 desensitized explosives
Division 6.1 substances of Packing Group I; except when transported under the excepted quantity provisions in 3;5
Division 6.2 infectious substances of Category A (UN Nos. 2814 and 2900) and medical waste of Category A (UN 3549)

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UN Model Regulations,1.4.3.2.3 (see ST/SG/AC.10/46/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 Material[1] and the IAEA circular on "~~The Physical Protection of Nuclear Material and Nuclear Facilities~~Nuclear Security Recommendations on Physical Protection of Nuclear Material and Nuclear Facilities"[2] are applied.

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1. INFCIRC/274/Rev.1, IAEA, Vienna (1980).
2. ~~INFCIRC/225/Rev.4 (Corrected), IAEA, Vienna (1999)~~INFCIRC/225/Rev.5, IAEA, Vienna (2011)..

Chapter 6

GENERAL PROVISIONS CONCERNING RADIOACTIVE MATERIAL

Parts of this Chapter are affected by State Variations BR 8, JP 3, JP 23, VC 7; see Table A-1

6.1 SCOPE AND APPLICATION

UN Model Regulations, 1.5.1.1 (see ST/SG/AC.10/46/Add.1)

6.1.1 These Instructions establish standards of safety which provide an acceptable level of control of the radiation, criticality and thermal hazards to ~~persons~~ 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*, (~~2012~~ 2018 Edition), IAEA Safety Standards Series No. SSR-6 (Rev.1), IAEA, Vienna (~~2012~~2018). Explanatory material can be found in *Advisory Material for the IAEA Regulations for the Safe Transport of Radioactive Material (~~2012~~ 2018 Edition)*, Safety Standard Series No. SSG-26 (Rev.1), IAEA, Vienna (~~2014~~2019). The prime responsibility for safety must rest with the person or organization responsible for facilities and activities that give rise to radiation risk.

UN Model Regulations, 1.5.1.2 (see ST/SG/AC.10/46/Add.1)

6.1.2 The objective of these Instructions is to establish requirements that must be satisfied to ensure safety and to protect ~~persons~~ people, property and the environment from ~~the~~ harmful effects of ionizing radiation ~~in~~ during the transport of radioactive material. This protection is achieved by requiring:

a) containment of the radioactive contents;

b) control of external ~~radiation levels~~ dose rate;

c) prevention of criticality; and

d) prevention of damage caused by heat.

These requirements are satisfied firstly by applying a graded approach to the limits of the contents for packages and aircraft and to the performance standards, which are applied to package designs depending upon the hazard of the radioactive contents. Secondly, they are satisfied by imposing conditions on the design and operation of packages and on the maintenance of the packagings, including consideration of the nature of the radioactive contents. ~~Finally~~ Thirdly, they are satisfied by requiring administrative controls including, where appropriate, approval by competent authorities. Finally, further protection is provided by making arrangements for planning and preparing emergency response to protect people, property and the environment.

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6.1.5 Specific provisions for the transport of excepted packages

6.1.5.1 Excepted packages which may contain radioactive material as specified in 2;7.2.4.1.1 are subject only to the following provisions of Parts 5 to 7:

UN Model Regulations, 1.5.1.5.1 a) (see ST/SG/AC.10/46/Add.1)

Secretariat Note.—	Reference to 5;3.2.12 b) is added in addition to the changes introduced into the 20th revised edition of the UN Model Regulations since it appears to have been missing (corresponding 5.2.1.7 is referenced in the UN Model Regulations).

a) the applicable provisions specified in 5;1.1 (as applicable), 5;1.2.2.2, 5;1.2.2.3, 5;1.2.4, 5;1.4, 5;1.6.3, 5;2.2, 5;2.4.10, 5;3.2.12 b), 5;3.2.12 e), 5;3.3, 5;4.1.5.7.1 f) 1), 5;4.1.5.7.1 f) 2),, 5;4.1.5.7.1 i), 5;4.4, 7;1.6, 7;2.5, 7;2.9.3.1, 7;2.9.4.3, 7;3.2.1, 7;3.2.4, 7;4.4 and 7;4.5; and

b) the requirements for excepted packages specified in 6;7.3;

except when the radioactive material possesses other hazardous properties and has to be classified in a class other than Class 7 in accordance with Special Provision A130 or A194, where the provisions listed in a) and b) above apply only as relevant and in addition to those relating to the main class or division.

UN Model Regulations, 1.5.1.5.2 (see ST/SG/AC.10/46/Add.1)

6.1.5.2 Excepted packages are subject to the relevant provisions of all other parts of these Instructions. ~~If the excepted package contains fissile material, one of the fissile exceptions provided in 2;7.2.3.5 must apply and the requirements of 7;2.9.4.3 must be met.~~

6.2 RADIATION PROTECTION PROGRAMME

6.2.1 The transport of radioactive material must be subject to a radiation protection programme, which must consist of systematic arrangements aimed at providing adequate consideration of radiation protection measures.

6.2.2 Doses to persons must be below the relevant dose limits. Protection and safety must be optimized in order that the magnitude of individual doses, the number of persons exposed and the likelihood of incurring exposure must be kept as low as reasonably achievable, economic and social factors being taken into account, within the restriction that the doses to individuals are subject to dose constraints. A structured and systematic approach must be adopted and must include consideration of the interfaces between transport and other activities.

6.2.3 The nature and extent of the measures to be employed in the programme must be related to the magnitude and likelihood of radiation exposure. The programme must incorporate the requirements in 6.2.2 and 6.2.4 to 6.2.7, 7;2.9.1.1 and 7;2.9.1.2. Programme documents must be available, on request, for inspection by the relevant competent authority.

6.2.4 For occupational exposure arising from transport activities, where it is assessed that the effective dose either:

a) is likely to be between 1 and 6 mSv in a year, a dose assessment programme via workplace monitoring or individual monitoring must be conducted; or

b) is likely to exceed 6 mSv in a year, individual monitoring must be conducted.

UN Model Regulations, 1.5.2.4 (see ST/SG/AC.10/46/Add.1)

When ~~individual monitoring or~~ workplace monitoring or individual monitoring is conducted, appropriate records must be kept.

Note.— For occupational exposure arising from transport activities, where it is assessed that the effective dose is most unlikely to exceed 1 mSv in a year, no special work patterns, detailed monitoring, dose assessment programmes or individual record-keeping need be required.

UN Model Regulations, 1.5.2.5 (see ST/SG/AC.10/46/Add.1)

6.2.5 In the event of ~~accidents or incidents~~ a nuclear or radiological emergency during the transport of radioactive material, ~~emergency~~ provisions, as established by relevant national and/or international organizations, must be observed to protect persons, property and the environment. ~~Appropriate guidelines for such provisions are contained in "Planning and Preparing for Emergency Response to Transport Accidents Involving Radioactive Material", IAEA Safety Standard Series No. TS-G-1.2 (ST-3), IAEA, Vienna (2002).~~ This includes arrangements for preparedness and response established in accordance with the national and/or international requirements and in a consistent and coordinated manner with the national and/or international emergency arrangements.

UN Model Regulations, 1.5.2.6 (see ST/SG/AC.10/46/Add.1)

6.2.6 ~~Emergency procedures must take into account~~The arrangements for preparedness and response must be based on the graded approach and take into consideration the identified hazards and their potential consequences, including the formation of other dangerous substances that may result from the reaction between the contents of a consignment and the environment in the event of ~~an accident~~ a nuclear or radiological emergency. Guidance for the establishment of such arrangements is contained in *Preparedness and Response for a Nuclear or Radiological Emergency*, IAEA Safety Standards Series No. GSR Part 7, IAEA, Vienna (2015); *Criteria for Use in Preparedness and Response for a Nuclear or Radiological Emergency*, IAEA Safety Standards Series No. GSG-2, IAEA, Vienna (2011); *Arrangements for Preparedness for a Nuclear or Radiological Emergency*, IAEA Safety Standards Series No. GS-G-2.1, IAEA, Vienna (2007), and *Arrangements for the Termination of a Nuclear or Radiological Emergency*, IAEA Safety Standards Series No. GSG-11, IAEA, Vienna (2018).

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6.4 SPECIAL ARRANGEMENT

6.4.1 Special arrangement means those provisions, approved by the competent authority, under which consignments which do not satisfy all the requirements of these Instructions applicable to radioactive material may be transported.

UN Model Regulations, 1.5.4.2 (see ST/SG/AC.10/46/Add.1)

6.4.2 Consignments for which conformity with any provision applicable to radioactive material is impracticable must not be transported except under special arrangement. Provided the competent authority is satisfied that conformity with the radioactive material provisions of these Instructions is impracticable and that the requisite standards of safety established by these Instructions have been demonstrated ~~through alternative means~~ through means alternative to the other provisions of these Instructions, the competent authority may approve special arrangement transport operations for a single consignment or a planned series of multiple consignments. The overall level of safety in transport must be at least equivalent to that which would be provided if all the applicable requirements in these Instructions had been met. For international consignments of this type, multilateral approval must be required.

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6.6 NON-COMPLIANCE

UN Model Regulations, 1.5.6.1 (see ST/SG/AC.10/46/Add.1)

In the event of non-compliance with any limit in these Instructions applicable to ~~radiation level~~ does rate or contamination:

a) the shipper, consignee, operator and any organization involved during transport, who may be affected, as appropriate, must be informed of the non-compliance:

   i) by the operator if the non-compliance is identified during transport; or

   ii) by the consignee if the non-compliance is identified at receipt;

b) the ~~operator,~~ shipper, operator or consignee, as appropriate, must:

   i) take immediate steps to mitigate the consequences of the non-compliance;

   ii) investigate the non-compliance and its causes, circumstances and consequences;

   iii) take appropriate action to remedy the causes and circumstances that led to the non-compliance and to prevent a recurrence of ~~similar~~ the causes and circumstances similar to those that led to the non-compliance; and

   iv) communicate to the relevant competent authority(ies) the causes of the non-compliance and the corrective or preventative actions taken or to be taken;

c) the communication of the non-compliance to the shipper and relevant competent authority(ies), respectively, must be made as soon as practicable and it must be immediate whenever an emergency exposure situation has developed or is developing.

— END —