International Civil Aviation Organization

DGP/20-WP/4
10/8/05

**WORKING PAPER**

# DANGEROUS GOODS PANEL (DGP)

## TWENTIETH MEETING

**Montréal, 24 October to 04 November 2005**

**Agenda Item 2: Development of recommendations for amendments to the Technical Instructions for the Safe Transport of Dangerous Goods by Air (Doc 9284) for incorporation in the 2007-2008 Edition**

## DRAFT AMENDMENTS OF THE TECHNICAL INSTRUCTIONS TO ALIGN TO THE UN RECOMMENDATIONS - PART 1

(Presented by the Secretary)

**SUMMARY**

Below are the draft amendments to Part 1, Chapters 1 to 5 to reflect the decisions taken by the UN Committee of Experts on the Transport of Dangerous Goods and the Globally Harmonized System of Classification of Labelling of Chemicals at the second session (Geneva, 10 December 2004) and as modified by the decisions of WG/04 and WG/05.

## Chapter 1

## SCOPE AND APPLICABILITY

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### 1.1 GENERAL APPLICABILITY

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1.1.1 These *Technical Instructions for the Safe Transport of Dangerous Goods by Air*, referred to herein as the "Instructions", prescribe the detailed requirements applicable to the international civil transport of dangerous goods by air. An addendum to ~~the 2007-2008~~ this Edition of the ICAO *Technical Instructions for the Safe Transport of Dangerous Goods by Air* [issued] by ICAO is part of ~~that edition of the~~ these Instructions.

*Secretarial Note.— DGP-WG/05-WP/20 as modified*

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## 1.4 TRANSPORT OF RADIOACTIVE MATERIAL

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### 1.4.2 Radiation protection programme

1.4.2.1 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.

1.4.2.2 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 1.4.2.3 to 1.4.2.5, 7;2.9.1.1; 7;2.9.1.2, 7;1.6.1.3 and applicable emergency response procedures. Programme documents must be available, on request, for inspection by the relevant competent authority.

1.4.2.3 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, ~~and doses to persons must be below the relevant dose limits~~ within the restriction that the doses to individuals be subject to dose constraints. A structured and systematic approach must be adopted and must include consideration of the interfaces between transport and other activities.

1.4.2.4 Workers must receive appropriate training concerning ~~the radiation hazards involved and~~ radiation protection including the precautions to be observed in order ~~to ensure restriction of their exposure and that~~ to restrict their occupational exposure and the exposure of other persons who might be affected by their actions.

1.4.2.5 For occupational exposures arising from transport activities, where it is assessed that the effective dose:

~~a) is most unlikely to exceed 1 mSv in a year, no special work patterns, detailed monitoring, dose assessment programmes or individual record keeping must be required;~~

~~b~~ 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; and

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

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

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### 1.4.4 Special arrangement

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

1.4.4.2 Consignments for which conformity with any provision applicable to Class 7 is impracticable must not be transported except under special arrangement. Provided the competent authority is satisfied that conformity with the Class 7 provisions of these Instructions is impracticable and that the requisite standards of safety established by these Instructions have been demonstrated through alternative means, 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 had been met. For ~~international~~ consignments of this type, multilateral approval must be required.

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## Chapter 2

## LIMITATION OF DANGEROUS GOODS ON AIRCRAFT

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### 2.4 DANGEROUS GOODS IN EXCEPTED QUANTITIES

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#### 2.4.2 Applicability

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2.4.2.1 Excepted quantities of dangerous goods may only be carried in accordance with the limitations and provisions contained in this paragraph and must meet all the applicable requirements of those parts of the Technical Instructions listed in 2.4.1 above.

2.4.2.2 Only dangerous goods which are permitted on passenger aircraft and which meet the criteria of the following classes, divisions and packing groups (if appropriate) may be carried under these provisions for dangerous goods in excepted quantities:

| | |
|---|---|
| Division 2.2 Without subsidiary risk | |
| Class 3 | All packing groups |
| Class 4 | Packing Groups II and III but excluding all self-reactive substances |
| Division 5.1 | Packing Groups II and III |
| Division 5.2 | Only when contained in a chemical kit or a first-aid kit |
| Division 6.1 | All substances other than those having an inhalation toxicity of Packing Group I |
| Class 8 | Packing Groups II and III but excluding UN Nos. 2803 and 2809 |
| Class 9 | All substances and articles other than magnetized material and carbon dioxide, solid. |

Substances and articles in the above classes, divisions and packing groups may also be radioactive material in excepted packages.

*Secretarial Note.— DGP-WG/04-WP/15.*

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### 2.4.4 Packing requirements

Packagings, including their closures, used for the transport of dangerous goods in excepted quantities must be of good quality. Packaging materials which may come into contact with the substance or article must not react dangerously with the substance or article and must not adversely affect its packaging functions. In addition:

a) each inner packaging must be constructed of plastic having a minimum thickness of not less than 0.2 mm, or of glass, earthenware or metal. The materials of inner packagings must not contain substances which may react dangerously with the contents, form hazardous products or significantly weaken the packagings. The closure of each inner packaging with a removable closure must be held securely in place with wire, tape or other positive means. Any receptacle having a neck with moulded screw threads must have a leakproof threaded type cap completely resistant to the contents. Except for temperature sensing devices, inner packagings must not completely fill with liquid when at a temperature of 55°C. Gases must be packed in appropriate receptacles;

b) each inner packaging or gas receptacle must be securely packed in an intermediate packaging with cushioning material. The intermediate packaging must completely contain the contents in case of breakage or leakage, regardless of package orientation. For liquid dangerous goods, the intermediate packaging must contain sufficient absorbent material to absorb the entire contents of the inner packaging. In such cases, the absorbent material may be the cushioning material. Dangerous goods must not react dangerously with cushioning and absorbent material or adversely affect their properties;

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*Secretarial Note.— DGP-WG/05-WP/38.*

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## Chapter 3

## GENERAL INFORMATION

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### 3.1 DEFINITIONS

3.1.1 The following is a list of definitions of commonly used terms in these Instructions. Definitions of terms which have their usual dictionary meanings or are used in the common technical sense are not included. Definitions of additional terms used solely in conjunction with radioactive material are contained in 2;7.2.

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***Approval.*** An authorization issued by the appropriate national authority for:

a) transport of those entries listed in Table 3-1 as forbidden on passenger and/or cargo aircraft to which Special Provision A1, A2 or A109 has been assigned in column 7; or

b) other purposes as specified in these Instructions.

*Note.— Unless otherwise indicated, approval is only required from the State of Origin.*

***ASTM***. The American Society for Testing and Materials (ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2959, United States of America).

***Bags*.** Flexible packagings made of paper, plastic film, textiles, woven material or other suitable materials.

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***Drums.*** Flat-ended or convex-ended cylindrical packagings made of metal, fibreboard, plastic, plywood or other suitable materials. This definition also includes packagings of other shapes, e.g. round taper-necked packagings, or pail-shaped packagings. Jerricans are not covered by this definition.

***Elevated temperature substance***. A substance which is transported or offered for transport:

— in the liquid state at a temperature at or above 100°C;

— in the liquid state with a flashpoint above ~~60.5~~ 60°C and which is intentionally heated to a temperature above its flashpoint; or

— in a solid state and at a temperature at or above 240°C.

***EN*** *(standard)*. A European standard published by the European Committee for Standardization (CEN) (CEN - 36 rue de Stassart, B-1050 Brussels, Belgium).

***Exception.*** A provision in these Instructions which excludes a specific item of dangerous goods from the requirements normally applicable to that item.

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***Gross mass.*** The total mass of the package.

***IAEA***. The International Atomic Energy Agency (IAEA, P.O. Box 100—A–1400 Vienna, Austria).

***ID number.*** A temporary identification number for entries in Table 3-1 — Dangerous Goods List — which have not been assigned a UN number.

***IMO***. The International Maritime Organization (IMO, 4 Albert Embankment, London SE1 7SR, United Kingdom).

***Incompatible.*** Describing dangerous goods which, if mixed, would be liable to cause a dangerous evolution of heat or gas or produce a corrosive substance.

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***International System of Units (SI).*** A rational and coherent system of units which provides the basis for the units of measurement used for air and ground operations as contained in Annex 5 to the Convention on International Civil Aviation.

***ISO*** (standard). An international standard published by the International Organization for Standardization (ISO - 1, rue de Varembé, CH-1204 Geneva 20, Switzerland).

***Jerricans.*** Metal or plastic packagings of rectangular or polygonal cross-section.

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***UN number.*** The four-digit number assigned by the United Nations Committee of Experts on the Transport of Dangerous Goods to identify a substance or a particular group of substances.

***[UNECE***. The United Nations Economic Commission for Europe (UNECE, Palais des Nations, 8-14 avenue de la Paix, CH-1211 Geneva 10, Switzerland).]

***Working pressure.*** The settled pressure of a compressed gas at a reference temperature of 15°C in a full pressure receptacle.

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## Chapter 4

## TRAINING

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### 4.2 TRAINING CURRICULA

4.2.1 Personnel must receive training in the requirements commensurate with their responsibilities. Such training must include:

a) general familiarization training — which must be aimed at providing familiarity with the general provisions;

b) function-specific training — which must provide detailed training in the requirements applicable to the function for which that person is responsible; and

c) safety training — which must cover the hazards presented by dangerous goods, safe handling and emergency response procedures.

4.2.2 Training must be provided or verified upon the employment of personnel identified in the categories specified in Table 1-4.

4.2.3 Recurrent training must take place within 24 months of previous training to ensure knowledge is current.

4.2.4 A test to verify understanding must be undertaken following training. ~~and a certificate issued confirming~~ Confirmation that the test has been completed satisfactorily is required.

4.2.5 A record of training must be maintained which must include:

a) the individual's name;

b) the most recent training completion date;

c) a description, copy or reference to training materials used to meet the training requirements;

d) the name and address of the organization providing the training; and

e) ~~a copy of the certification issued when the individual was trained,~~ evidence which shows that a test has been completed satisfactorily.

The records of training must be made available upon request to the appropriate national authority.

4.2.6 The subject matter relating to dangerous goods transport with which various categories of personnel should be familiar is indicated in Table 1-4.

*Secretarial Note.— DGP-WG04-WP/40 as modified.*

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## Chapter 5

## DANGEROUS GOODS SECURITY

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### 5.3 SECURITY PLANS

5.3.1 Operators, shippers and others engaged in the transport of high consequence dangerous goods should adopt, implement and comply with a security plan that addresses at least the elements specified in 5.3.2. High consequence dangerous goods are those which have the potential for misuse in a terrorist incident and which may, as a result, produce serious consequences such as mass casualties or mass destruction. An indicative list of high consequence dangerous goods is provided in Table 1-5.

*Note.— When national authorities issue exemptions, they should consider all of the provisions in this Chapter.*

5.3.2 The security plan should comprise at least the following elements:

a) specific allocation of responsibilities for security to competent and qualified persons with appropriate authority to carry out their responsibilities;

b) records of dangerous goods or types of dangerous goods transported;

c) review of current operations and assessment of vulnerabilities, including inter-modal transfer, temporary transit storage, handling, and distribution, as appropriate;

d) clear statement of measures including training policies (including response to higher threat conditions, new employee/employment verifications, etc.), operating practices (e.g. access to dangerous goods in temporary storage proximity to vulnerable infrastructure, etc.), equipment and resources that are to be used to reduce security risks;

e) effective and up to date procedures for reporting and dealing with security threats, breaches of security or security incidents;

f) procedures for the evaluation and testing of security plans and procedures for periodic review and update of the plans;

g) measures to ensure the security of transport information contained in the plan; and

h) measures to ensure that the security of the distribution of transport documentation is limited as far as possible. (Such measures must not preclude provision of the transport documentation required by Part 5, Chapter 4 of these Instructions.)

*Note.— Operators, shippers and others with responsibilities for the safe and secure transport of dangerous goods should cooperate with each other and with appropriate authorities to exchange threat information, apply appropriate security measures and respond to security incidents.*

**Table 1-5. Indicative list of high consequence dangerous goods**

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|---|
| Class 1 Division 1.1 explosives |
| Class 1 Division 1.2 explosives |
| Class 1 Division 1.3 compatability group C explosives |
| Division 2.3 toxic gases (excluding aerosols) |
| Division 6.1 substances of Packing Group 1; except when transported under the excepted quantity provisions in 2.4 |
| Division 6.2 infectious substances of Category A (UN Nos. 2814 and 2900) |
| Class 7 radioactive materials in quantities greater than 3000 $A_1$ (special form) or 3000 $A_2$, as applicable in Type B and Type C packages. |

## 5.4 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 and of IAEA INFCIRC/225 (Rev.4) are applied.

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