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INTERNATIONAL CIVIL AVIATION ORGANIZATION

**TECHNICAL INSTRUCTIONS FOR THE SAFE TRANSPORT
OF DANGEROUS GOODS BY AIR**

2009-2010 EDITION

ADDENDUM NO. 3/CORRIGENDUM NO. 2

The attached addendum/corrigendum should be incorporated into the 2009-2010 Edition of the Technical Instructions (Doc 9284).

Note.— Addendum No. 1 did not affect the English version of the 2009-2010 Edition of the Technical Instructions.

(5 pages)

TECHNICAL INSTRUCTIONS FOR THE SAFE TRANSPORT OF DANGEROUS GOODS BY AIR

1. The following amendments relate to classification of mixtures of dangerous goods, provisions requiring State of the Operator approval for mixtures containing ethyl chloride or similar gases and classification criteria for Division 1.4S explosives. They are approved and published by decision of the Council of ICAO and should be incorporated in the 2009-2010 Edition of the Technical Instructions (Doc 9284):

In Part 2, Introductory Chapter, page 2-0-2, *replace* paragraphs 3 to 3.9 with the following:

3. UN NUMBERS AND PROPER SHIPPING NAMES

3.1 Dangerous goods are assigned to UN numbers and proper shipping names according to their hazard classification and their composition.

3.2 Dangerous goods commonly carried are listed in Table 3-1. Where an article or substance is specifically listed by name, it must be identified in transport by the proper shipping name in Table 3-1. Such substances may contain technical impurities (for example, those deriving from the production process) or additives for stability or other purposes that do not affect its classification. However, a substance listed by name containing technical impurities or additives for stability or other purposes affecting its classification must be considered a mixture or solution (see 3.5). For dangerous goods not specifically listed by name, "generic" or "not otherwise specified (n.o.s.)" entries are provided (see 3.8) to identify the article or substance in transport. Each entry in Table 3-1 is characterized by a UN number. Table 3-1 also contains relevant information for each entry, such as hazard class, subsidiary risk(s) (if any), packing group (where assigned), packing requirements, passenger and cargo aircraft requirements, etc. Entries in Table 3-1 are of the following four types:

a) Single entries for well-defined substances or articles

e.g. Acetone	UN 1090
Ethyl nitrite solution	UN 1194

b) Generic entries for a well-defined group of substances or articles

e.g. Adhesives	UN 1133
Perfumery products	UN 1266
Carbamate pesticide, solid, toxic	UN 2757

c) Specific n.o.s. entries covering a group of substances or articles of a particular chemical or technical nature

e.g. Nitrates, inorganic, n.o.s.	UN 1477
Alcohols, n.o.s.	UN 1987

d) General n.o.s. entries covering a group of substances or articles meeting the criteria of one or more classes or divisions

e.g. Flammable solid, organic, n.o.s.	UN 1325
Flammable liquid, n.o.s.	UN 1993

3.3 All self-reactive substances of Division 4.1 are assigned to one of twenty generic entries in accordance with the classification principles and flow chart described in the UN Recommendations, 2.4.2.3.3.

3.4 All organic peroxides of Division 5.2 are assigned to one of twenty generic entries in accordance with the classification principles and flow chart described in the UN Recommendations, 2.5.3.3.

3.5 A mixture or solution composed of a single predominant substance identified by name in Table 3-1 and one or more substances not subject to these Instructions and/or traces of one or more substances identified by name in Table 3-1 must be assigned the UN number and proper shipping name of the predominant substance named in Table 3-1, unless:

- a) the mixture or solution is identified by name in Table 3-1; or
- b) the name and description of the substance named in Table 3-1 specifically indicates that it applies only to the pure substance; or
- c) the hazard class or division, subsidiary risk(s), physical state or packing group of the solution or mixture is different from that of the substance named in Table 3-1; or
- d) the hazard characteristics and properties of the mixture or solution necessitate emergency response measures that are different from those required for the substance identified by name in Table 3-1.

3.6 For a solution or mixture when the hazard class, the physical state or the packing group is changed in comparison with the listed substance, the appropriate n.o.s. entry must be used including its packaging and labelling provisions.

3.7 A mixture or solution containing one or more substances identified by name in Table 3-1 or classified under an n.o.s. entry and one or more substances not subject to these Instructions is not subject to these Instructions if the hazard characteristics of the mixture or solution are such that they do not meet the criteria (including human experience criteria) for any class.

3.8 Substances or articles which are not specifically listed by name in Table 3-1 must be classified under a "generic" or "n.o.s." entry. The substance or article must be classified according to the class definitions and test criteria in this Part, and is then assigned the "generic" or "n.o.s." entry in Table 3-1 which most appropriately describes the article or substance.¹ This means that a substance is to be assigned to an entry of type c), as defined in 3.2, only if it cannot be assigned to an entry of type b), and to an entry of type d) only if it cannot be assigned to an entry of type b) or c)¹.

3.9 A mixture or solution that is not identified by name in Table 3-1 and that is composed of two or more dangerous goods must be assigned to an entry that has the proper shipping name, description, hazard class or division, subsidiary risk(s) and packing group that most precisely describe the mixture or solution.

In Part 2, Chapter 1, page 2-1-2, *add* new paragraph 1.4.2.1:

1.4.2.1 Certain Division 1.4S explosives, identified by Special Provision A165 in Table 3-1, are subject to Test Series 6 (d) of Part I of the *UN Manual of Tests and Criteria* (see ST/SG/AC.10/36/Add.2) to demonstrate that any hazardous effects arising from functioning are confined within the package. Evidence of a hazardous effect outside the package includes:

- a) denting or perforation of the witness plate beneath the package;
- b) a flash or flame capable of igniting such as a sheet of 80 ± 3 g/m² paper at a distance of 25 cm from the package;
- c) disruption of the package causing projection of the explosives contents; or
- d) a projection which passes completely through the packaging (a projection or fragment retained or stuck in the wall of the packaging is considered as non hazardous).

The appropriate national authority may wish to take into account the expected effect of the initiator when assessing the results of the test, if these are expected to be significant when compared to the articles being tested. If there are hazardous effects outside the package, then the product is excluded from Compatibility Group S.

1. See also the "List of n.o.s. and generic proper shipping names" in Attachment 1, Chapter 2.

In Part 3, Chapter 1, page 3-1-2, *replace* paragraphs 1.3 to 1.3.3 with the following:

1.3 MIXTURES OR SOLUTIONS

Note.— Where a substance is specifically listed by name, it must be identified in transport by the proper shipping name in Table 3-1. Such substances may contain technical impurities (for example, those deriving from the production process) or additives for stability or other purposes that do not affect its classification. However, a substance listed by name containing technical impurities or additives for stability or other purposes affecting its classification must be considered a mixture or solution (see 2;3.2 and 2;3.5).

1.3.1 A mixture or solution is not subject to these Instructions if the characteristics, properties, form or physical state of the mixture or solution are such that it does not meet the criteria, including human experience criteria, for inclusion in any class.

1.3.2 A mixture or solution composed of a single predominant substance identified by name in Table 3-1 and one or more substances not subject to these Instructions and/or traces of one or more substances identified by name in Table 3-1 must be assigned the UN number and proper shipping name of the predominant substance named in Table 3-1, unless:

- a) the mixture or solution is specifically identified by name in Table 3-1; or
- b) the name and description of the substance named in Table 3-1 specifically indicates that it applies only to the pure substance; or
- c) the hazard class or division, subsidiary risk(s), physical state or packing group of the solution or mixture is different from that of the substance named in Table 3-1; or
- d) the hazard characteristics and properties of the mixture or solution necessitate emergency response measures that are different from those required for the substance identified by name in Table 3-1.

1.3.3 Qualifying words such as “**solution**” or “**mixture**”, as appropriate, must be added as part of the proper shipping name, e.g. “**Acetone solution**”. In addition, the concentration of the solution or mixture may also be indicated after the basic description of the mixture or solution, e.g. “**Acetone 75% solution**”.

1.3.4 A mixture or solution that is not identified by name in Table 3-1 and that is composed of two or more dangerous goods must be assigned to an entry that has the proper shipping name, description, hazard class or division, subsidiary risk(s) and packing group that most precisely describe the solution or mixture.

In Part 3, Chapter 1, page 3-1-2, *delete* paragraph 1.4.

In Part 3, Chapter 2, Table 3-1, *add* “A165” to column 7 for the following entries:

page 3-2-44, **Cartridges, power device**†, UN 0323
page 3-2-46, **Charges, bursting, plastics bonded**, UN 0460
page 3-2-47, **Charges, explosive, commercial** without detonator †, UN 0445
page 3-2-47, **Charges, shaped** without detonator †, UN 0441
page 3-2-68, **Detonator assemblies, non-electric** for blasting †, UN 0500
page 3-2-68, **Detonators, electric** for blasting †, UN 0456
page 3-2-68, **Detonators for ammunition** †, UN 0366
page 3-2-69, **Detonators, non-electric** for blasting†, UN 0455

In Part 3, Chapter 3, Table 3-2, page 3-3-14, *add* the following new special provision:

A165 This entry must not be used for transport on passenger aircraft when testing in accordance with the UN *Manual of Tests and Criteria* Test Series 6 (a), upon which classification was based, has shown evidence of a hazardous effect outside the package. This includes denting or perforation of the witness plate beneath the package. From 1 January 2010, for transport aboard passenger aircraft, this entry may only be used if the results of Test Series 6 (d) of Part I of the UN *Manual of Tests and Criteria* have demonstrated that any hazardous effects arising from functioning are confined within the package (see 2;1.4.2.1).

Note.— If the 6 (d) test is successfully completed before 1 January 2010, this entry may be used for transport on passenger aircraft.

In Part 4, Chapter 4, page 4-4-4, Packing Instruction 200, paragraph 5), *insert* “and the State of the Operator” after “State of Origin”.

2. The following editorial amendments should be incorporated in the 2009-2010 Edition of the Technical Instructions (Doc 9284):

In Part 2, Chapter 1, page 2-1-2, paragraph 1.3.1 e), *Note*, *amend* “Notes 3 to 5” to read “Notes 2 to 4”.

In Part 2, Chapter 2, page 2-2-1, paragraph 2.2.1 a), ii), *Note*, *amend* “2.5.2” to read “2.5.1 a)”.

In Part 3, Chapter 2, page 3-2-2, paragraph 2.1.1, Column 8, last sentence, *amend* “Chapters 1 to 10 of this part” to read “Part 2, Chapters 1 to 9”.

In Part 4, Chapter 4, page 4-4-12, Packing Instruction Y203, **All aerosols**, paragraph b), *delete* “, in wooden boxes (4C1, 4C2), plywood boxes (4D), reconstituted wood boxes (4F), fibreboard boxes (4G) or plastic boxes (4H1, 4H2) of Packing Group II”.

In Part 5, Chapter 4, page 5-4-2, paragraph 4.1.4.3 a), *amend* “3;1.2.5” to read “3;1.2.7”.

In Part 5, Chapter 4, page 5-4-3, paragraph 4.1.5.1 e), first sentence, *amend* “2964” to read “2969”.

In Part 5, Chapter 4, page 5-4-3, paragraph 4.1.5.5, *delete* “Not used.”.

In Attachment 3, Chapter 1, Table A-1 — State variations, **RU — RUSSIAN FEDERATION**, RU 1 (as amended by Addendum No. 2/Corrigendum No. 1), second sentence, *replace* “dangerous goods labels” with “dangerous goods markings”.

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