

TECHNICAL INSTRUCTIONS FOR THE SAFE TRANSPORT OF DANGEROUS GOODS BY AIR (DOC 9284)

REVISIONS INCORPORATED IN THE 2021-2022 EDITION

The Technical Instructions have been amended to make them as up to date as possible and to clarify, where necessary, the intent of the requirements. Account has been taken of comments received from users throughout the world. This has resulted in numerous minor changes in all parts of the book.

The requirements have been amended so as to align them, as far as possible, with the Twenty-first Revised Edition of the United Nations *Recommendations on the Transport of Dangerous Goods* and the *International Atomic Energy Agency (IAEA) Regulations for the Safe Transport of Radioactive Material*, as incorporated therein.

The amendments include the following:

- revisions to radioactive material provisions to align with the International Atomic Energy Agency Regulation for the Safe Transport of Radioactive Material including replacement of references to “radiation level” with “dose rate” throughout the Instructions;
- revisions to provisions for marking of packages to ensure marks are not folded or wrapped around multiple sides of a package (3;4, 3;5, 5;2.2 and Packing Instructions 650 and 659);
- revisions to general provisions including:
 - addition of new exception for dangerous goods used to preserve tissues or organs intended for use in transplantation (1;1.1.5.1 a));
 - addition of new exception for dangerous goods used for pest management activities (1;1.1.5.1 c));
 - clarification of provisions for designated postal operators (DPOs) to offer mail articles containing dry ice as a refrigerant for infectious substances assigned to Category B (UN 3373) (1;2.3.2);
 - replacement of definition for “radiation level” with new definition for “dose rate” (1;3);
 - revision to definitions for self-accelerating decomposition temperature (SADT), self-accelerating polymerization temperature (SAPT), transport index (TI) assigned to a package, overpack or freight container and UN number (1;3);
 - revision to training provisions to support a competency-based approach to training and assessment (1;4);
 - addition of new entries to the indicative list of high consequence dangerous goods (Table 1-7);
- revision to classification criteria including:
 - addition of new provisions for solid medical waste of Category A transported for disposal (2;6.3);
 - revisions to radioactive material criteria to align with the International Atomic Energy Agency Regulation for the Safe Transport of Radioactive Material; (2;7);
 - revision to corrosive substances criteria for packing group assignment (2;8.3);
 - addition of a categorized list of substances and articles assigned to Class 9 (Table 2-16);
- addition of new entries in Table 3-1 including:
 - **Detonators, electronic** programmable for blasting (UN 0511);
 - **Detonators, electronic** programmable for blasting (UN 0512);
 - **Detonators, electronic** programmable for blasting (UN 0513);
 - **Dangerous goods in articles** (UN 3363);
 - **Medical waste, Category A, affecting humans**, solid (3549);
 - **Medical waste, Category A, affecting animals** only, solid (UN 3549);
- renaming of **2-Dimethylaminoethyl methacrylate** to **2-Dimethylaminoethyl methacrylate, stabilized** for UN 2522 in Table 3-1;
- revision to special provisions including:
 - Special Provision A88: addition of new requirement for an approval to be granted from the appropriate authority of the State of the Operator, in addition to the State of Origin;
 - Special Provision A99: addition of new requirement for an approval to be granted from the appropriate authority of the State of the Operator in addition to the State of Origin;
 - Special Provision A107: revised to take into account the new entry in Table 3-1 for UN 3363 — **Dangerous goods in articles**;
 - Special Provision A145: revised to incorporate waste gas cartridges and waste receptacles, small containing gases, making them forbidden for transport by air, and to except from the Instructions those that were filled with gases of Division 2.2 and pierced;
 - Special Provision A154: addition of guidance to ensure that a lithium cell or battery is not damaged or defective;
 - Special Provisions A176 and A214: revised to take into account the assignment of the special provision to UN 3529;
 - Special Provision A185: revised to clarify classification criteria for lithium batteries installed in cargo transport units;

- Special Provision A201: revised to allow transport in certain conditions of UN 3480 or UN 3090, when necessary for urgent medical need, on a passenger aircraft with the prior approval of the State of Origin and the operator;
- Special Provision A213: revision to clarify lithium content and total capacity limits for batteries containing both lithium metal and lithium ion cells;
- addition of the following new special provisions:
 - Special Provision A215: new provision allowing a proper shipping name from Table 3-1 as the technical name for UN 3077 — **Environmentally hazardous substance, solid, n.o.s.** and UN 3082 — **Environmentally hazardous substance, liquid, n.o.s.**;
 - Special Provisions A216 and A217: new provisions requiring additional tests to ensure stability of nitrocellulose;
 - Special Provision A218: new provision to clarify what can be classified as UN 3549 — **Medical waste, Category A, affecting humans** and **Medical waste, Category A, affecting animals**;
 - Special Provision A219: criteria for the transport of UN 2216 — **Fish meal, stabilized**;
- revision to packing requirements including:
 - new provision allowing packagings to conform to more than one successfully tested design type and to bear more than one UN specification mark (4;1.1.2 and 6;2.1.15);
 - revision to the list of dangerous goods that do not need to be considered in the calculation of the “Q” value (4;1.1.9 e) 3));
 - updates to references to ISO provisions that must be met for cylinders and closed cryogenic receptacles (4;4);
 - revision to test period for periodic inspection of cylinders containing fire extinguishing agents assigned to UN 3500 (Packing Instruction 218);
 - addition of an exception from the requirement to ensure complete drainage of flammable liquid fuel tanks for machinery that can only be handled in an upright position (Packing Instruction 378);
 - revisions to packagings for the sake of alignment with the UN Model Regulations and other packing instructions contained in the Instructions (Packing Instructions 457, 462-463, 464-465, 470-471, 478-479, 480-482, 487-491, 492, 553-555, 620, 870, 871, 872, 957);
 - renumbering of Packing Instruction 622 to 621 for sake of alignment with corresponding packing instruction in the UN Model Regulations;
 - revision to the criteria allowing dangerous goods of Class 3, 8 or 9 to be packed in the same packaging as Division 6.2 substances (Packing Instruction 650);
 - addition of provisions for the transport of UN 2216 — **Fish meal, stabilized** (Packing Instruction 956);
 - revisions to account for addition of alternate proper name for UN 3363 (Packing Instruction 962);
 - clarification of provisions for dry ice as a refrigerant packed in a ULD containing ID 8000 — Consumer commodities (Packing Instruction Y963);
 - addition of a requirement to Section II of Packing Instructions 965 to 970 for undeclared or misdeclared lithium ion cells or batteries discovered in cargo or mail to be reported in accordance with 7;4.5 (Packing Instructions 965 to 970);
 - addition of an alternate compliance statement on an air waybill for lithium batteries packed in accordance with Section II of multiple packing instructions (Packing Instructions 965 to 970);
 - addition of an exception from the requirement to ensure complete drainage of liquid fuel tanks for machinery that can only be handled in an upright position (Packing Instruction 972);
 - addition of a requirement for undeclared or misdeclared dangerous goods discovered in cargo or mail, for which exceptions from the Instructions apply, to be subject to the reporting requirements of 7;4.5 (Packing Instructions 650, 659, 965, 966, 967, 968, 968, 969);
- revision to marking and labelling requirements including:
 - clarification of minimum height marking requirements for the UN number and the letters “UN” or “ID” (5;2.4.1);
 - revision to the permitted dimensions for the lithium battery mark (5;2.4.16);
- revision to packaging requirements and tests including:
 - clarification of minimum height requirements for marks required on packagings other than inner packagings (6;2.1.1 and 6;6.4.1);
 - revision to the provisions for marking of the date of manufacture on packagings of types 1H and 3H (6;2.1.1 e));
 - new provision for packagings conforming to more than one design type (6;2.1.15);
 - addition of compatibility requirement for drums (6;3.1.2 and 6;3.1.3);
 - revision to capacity limits for non-refillable metal aerosols and non-refillable receptacles containing gas (6;3.2.7);
 - revision to ISO references for construction and testing of UN cylinders and closed cryogenic receptacles (6;5.2);
 - clarification of marking provision for cylinders, closed cryogenic receptacles and metal hydride storage systems (6;5.2);

- revisions to operator responsibilities including:
 - revisions to safety risk assessment provisions (7;1.7);
 - revisions to provisions for the loading of battery-powered mobility aids carried to include dry and nickel-metal hydride batteries (7;2.13);
 - revision to the provisions for reporting of dangerous goods occurrences (7;4.6);
 - revisions to provisions for dangerous goods carried by passengers and crew:
 - addition of provisions for nickel-metal hydride and dry batteries (Table 8-1, Item 2);
 - revision to provisions for battery-powered mobility aids (Table 8-1, Item 4);
 - revision to provisions for cartridges of Division 2.2 (Table 8-1, Item 12).
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