

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

REVISIONS INCORPORATED IN THE 2023-2024 EDITION

The Technical Instructions have been amended to maintain alignment, as far as possible, with the Twenty-second Revised Edition of the United Nations *Recommendations on the Transport of Dangerous Goods*, to address air-specific safety risks and to facilitate air transport while maintaining safety.

The amendments include the following:

- revisions to general provisions including:
 - addition of new exception for alcohol-based hand sanitizers and cleaning products carried by the operator (added through Addendum No. 1 to the 2021–2022 Edition) (1;2.2.1 d));
 - removal of provision allowing for the training provisions contained in the 2019–2020 Edition of the Instructions to be used (Part 1;4);
- revisions to classification criteria including:
 - revisions to radioactive material criteria to align with the International Atomic Energy Agency Regulations for the Safe Transport of Radioactive Material (2;7);
 - revision to corrosive substances criteria for packing group assignment (2;8.3);
 - addition of an exception for button cells installed in equipment from the requirement for lithium battery manufacturers and subsequent distributors to make available a summary of the required test for lithium batteries (2;9.3);
- revisions to Table 3-1 including:
 - addition of new entry for UN 3550 — **Cobalt dihydroxide powder**, containing not less than 10% respirable particles;
 - deletion of entry for UN 1169 — **Extracts, aromatic, liquid**;
 - renaming of UN 1197 — **Extracts, flavouring, liquid** to **Extracts, liquid**, for flavour or aroma;
 - renaming of UN 2913 — **Radioactive material, surface contaminated objects (SCO-I or SCO-II)**, non-fissile or fissile excepted to **Radioactive material, surface contaminated objects (SCO-I, SCO-II or SCO-III)**, non-fissile or fissile excepted in Table 3-1;
 - revision to entries for UN 3221 — **Self-reactive liquid type B*** and UN 3231 — **Self-reactive liquid type B, temperature controlled*** to make them forbidden for transport under any circumstance;
 - revision to class and subsidiary hazard in columns 3 and 4 and consequential revisions to values in remaining columns for UN 1891 — **Ethyl bromide**;
- revision to special provisions including:
 - Special Provisions A1 and A2: addition of requirement for transport in accordance with the special provision to be noted on the dangerous goods transport document;
 - Special Provision A4: revised to address an inconsistency between the maximum net quantity per package permitted by the special provision and the maximum net quantity per package permitted for some substances in Table 3-1;

- Special Provision A19: addition of a note to clarify the scope of what is considered a portable fire extinguisher;
 - Special Provision A35: revised to clarify that particle sizes equal to 53 microns (mechanically produced) or 840 microns (chemically produced) were included in the exception from the Technical Instructions for UN 1326 — **Hafnium powder, wetted**, UN 1352 — **Titanium powder, wetted** and UN 1358 — **Zirconium powder, wetted**;
 - Special Provisions A61: addition of requirement for “not restricted” and the special provision number to be provided on the air waybill when issued;
 - Special Provision A117: revised to include UN 3549 — **Medical waste, Category A, affecting humans** or **Medical waste, Category A, affecting animals** with UN 2814 and UN 2900 as the applicable entries for wastes containing Category A infectious substances;
 - Special Provision A132: revised to remove the transition period during which an exception from the requirement for articles containing smoke-producing substance(s) corrosive according to criteria for Class 8 to be labelled with a toxic subsidiary label could be applied;
 - Special Provision A176: addition of requirement for transport in accordance with the special provision to be noted on the dangerous goods transport document;
 - Special Provision A180: inclusion of a formaldehyde solution in criteria for an exception for non-infectious specimens;
- addition of the following new special provisions:
- Special Provision A221: new provision to clarify scope of classification criteria for UN1002 — **Air, compressed**;
 - Special Provision A222: new provision to clarify what can be classified as UN 1012 — **Butylene**;
 - Special Provision A223: criteria for excepting life-saving appliances containing only small cartridges of a Division 2.2 gas from the Technical Instructions that is moved from Packing Instruction 955;
 - Special Provision A224: criteria for allowing UN 3548 — **Articles containing miscellaneous dangerous goods, n.o.s.*** to be transported on passenger and cargo aircraft;
 - Special Provision A225: criteria for allowing UN 3538 — **Articles containing non-flammable, non toxic gas, n.o.s.*** to be transported on passenger and cargo aircraft;
- revision to list of classes, divisions and packing groups for which dangerous goods in limited quantities are permitted (3;4.1.2);
- revision to general packing requirements and packing instructions:
- clarification of scope for mass and volume limits of packagings not subject to design type testing (4;2.3);
 - revision to general requirements for filling of cylinders and closed cryogenic receptacles to take into account components with varying pressure ratings (4;4.1.1.6);
 - updating of references to ISO standards (4;4.1.1.8, Packing Instruction 214 and Packing Instruction 219);
 - revisions to provisions for aerosols to address inconsistencies with the UN Model Regulations (Packing Instructions 203, Y203 and Y963);
 - addition of packing requirements for engines and machinery in Packing Instructions 220 and 378 to align with text in the associated packing instruction in the UN Model Regulations (P005) and in Packing Instruction 972;

- addition of existing provision prohibiting lithium batteries identified as being damaged or defective from transport to packing instructions for engines, machinery, vehicles, battery-powered equipment, and life-saving appliances (Packing Instructions 220, 378, 950, 951, 952, 955);
- clarification of scope of exception from the requirements of Part 2;9.3 for lithium batteries installed in engines, machinery or vehicles to be transported under State approval (Packing Instructions 220, 378, 950, 951, 952);
- addition of packing instruction for UN 3538 — **Articles containing non-flammable, non toxic gas, n.o.s.*** (Packing Instruction 222);
- establishment of a total quantity per package limit for UN 3292 — **Cells, containing sodium** for transport on cargo aircraft to align with the maximum quantity limitations of packagings permitted (Packing Instruction 492);
- revisions to Packing Instruction 621 to include packagings with non-removeable heads for drums and jerricans and to align with standard packing instructions and corresponding provisions in the UN Model Regulations (Packing Instruction 621);
- revisions to Packing Instruction 870 to establish a total quantity per package limit for UN 2794 — **Batteries, wet, filled with acid** and UN 2795 — **Batteries, wet, filled with alkali** for transport on cargo aircraft to align with the maximum quantity limitations of packagings permitted and to remove packing conditions for these batteries when installed in equipment since batteries installed in equipment are classified under a different UN number and subject to a different packing instruction;
- revisions to packing instructions for lithium batteries including:
 - removal of exceptions from full regulation provided in accordance with Section II of Packing Instructions 965 and 968 by deletion of that section;
 - addition of a requirement for a stack test in Section IB of Packing Instructions 965 and 968;
 - revision to clarify the requirements for protection against short circuits in Sections I and II of Packing Instructions 966 and 969;
 - addition of a requirement in Section II of Packing Instructions 966, 967, 969 and 970 for packages placed in overpacks to be secured and the intended function of each package not impaired by the overpack;
 - addition of a requirement in Sections I and II of Packing Instructions 967 and 970 to ensure that multiple pieces of equipment packed into the same outer packaging are packed so as to prevent damage due to contact between the pieces of equipment;
- addition of packing instruction for UN 3548 — **Articles containing miscellaneous dangerous goods, n.o.s.*** (Packing Instruction 975);
- revision to shipper responsibilities including:
 - removal of requirement for a telephone number for additional information to appear on the lithium battery mark (5;2.4.16.2 and Figure 5-3);
 - addition of a requirement for supplementary information to be included on the dangerous goods transport document when unknown radionuclides or mixtures are offered for transport (5;4.1.5.8 g));
 - addition of a requirement for additional information required by a special provision to be included on the dangerous goods transport document (5;4.1.5.10);
- revision to packaging requirements and tests including:
 - revision to provisions for metal receptacles (aerosols), non-refillable (Table 6-3, 6;3 and 6;5);

- revisions to distinguish between cylinder shells, inner vessels and closed cryogenic receptacles (6;5);
 - revision to the design and construction provisions for cylinders and closed cryogenic receptacles to include “intended use” as one of the conditions they must be designed, manufactured, tested and equipped to withstand (6;5.1.1.1);
 - addition of provisions for parts of cylinders and closed cryogenic receptacles to be conformity assessed separately (6;5.1.4 and 6;5.2.5);
 - revision to the procedures for design type approval of cylinders and closed cryogenic receptacles (6;5.2.5);
 - revision to marking provisions for UN cylinders and closed cryogenic receptacles (5;2.7 and 5;2.8);
- revisions to operator responsibilities including:
- revision to extend existing requirement for operators to replace labels that are lost, detached or illegible to marks (7;2.7);
 - revision to provisions for loading of battery-powered mobility aids by passengers or crew (7;2.13);
 - revision to list of dangerous goods not required to appear in the information to the pilot-in-command (Table 7-9).
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