International Civil Aviation Organization

DGP/30-WP/3
8/8/25

WORKING PAPER

DANGEROUS GOODS PANEL (DGP)

THIRTIETH MEETING

Montréal, Canada, 6 to 10 October 2025

Agenda Item 10: Other business

REPORT OF THE DANGEROUS GOODS PANEL (DGP) WORKING GROUP MEETING (DGP-WG/25)

(Presented by the Secretary)

SUMMARY

This working paper presents the report of the DGP Working Group Meeting held in Delhi, India between 21 to 25 April 2025 (DGP-WG/25).

1. INTRODUCTION

1.1 The Dangerous Goods Panel Working Group Meeting (DGP-WG/25) convened from 21 to 25 April 2025 in Delhi, India. Mr. Maneesh Kumar, Joint Director General at the Directorate General of Civil Aviation (DGCA), India, opened the meeting. Mr. T. Muller chaired and Mr. L. Cascardo vice-chaired the meeting. Mr. Muller, on behalf of the working group, expressed deep appreciation to Mr. Maneesh Kumar and all the members of the DGCA involved with organizing the meeting and providing such excellent facilities.

2. ATTENDANCE

2.1 The meeting was attended by the following panel members, advisers and observers:

Members	Advisers	State/International Organization
S. Bitossi		Australia
L. Cascardo		Brazil
D. Sylvestre		Canada
P. Tatin	M. Cosset	France

Members	Advisers	State/International Organization
N. Kumar	A. Abrahim P. Balasubramanian C. Chawla R. Chitrakar T. George R. Panicker Ms. P. Kaur D. Yadav	India
T. Tabata	S. Ito K. Nakano H. Oda T. Okamoto K. Takahashi K. Yanagawa	Japan
T. Muller	E. Boon R. Dardenne T. Groffen K. Vermeersch	Netherlands
J. Finlayson		New Zealand
E. Gillett	M. Cowlishaw W. Herath	Qatar
S. Kang	N. Jaejoon	Republic of Korea
	B. Ngiba N. Smit	South Africa
M. de Castro		Spain
M. Ranito		United Kingdom
D. Pfund	K. Leary K. Ranck	United States
B. Firkins	T. Howard	International Air Transport Association (IATA)
D. Ferguson		International Coordinating Council of Aerospace Industries Associations (ICCAIA)
D. Schlichting		International Federation of Air Line Pilots' Associations (IFALPA)

Advisers	
G. Leach	Dangerous Goods Advisory Council (DGAC)
Observers	
L. Calleja Barcena	European Union Aviation Safety Agency (EASA)
C. Litus-Koza	North Atlantic Treaty Organization (NATO)

3. SUMMARY OF DISCUSSIONS

3.1 A summarized outcome of discussions is provided in Appendix F to this report. The report of discussions is provided in paragraph 4. Amendments agreed under this agenda item are presented in Appendix A to this working paper.

4. REPORT OF DISCUSSIONS

4.1 Agenda Item 1: Harmonizing ICAO dangerous goods provisions with UN Recommendations on the Transport of Dangerous Goods (REC-A-DGS-2027)

4.1.1 Agenda Item 1.1: Develop proposals, if necessary, for amendments to Annex 18 — *The Safe Transport of Dangerous Goods by Air*

4.1.1.1 There were no amendments proposed under this agenda item.

4.1.2 Agenda Item 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 2027-2028 Edition

4.1.2.1 Draft amendments to the Technical Instructions to align with the UN recommendations

4.1.2.1.1 Background

4.1.2.1.1.1 The meeting reviewed draft amendments to 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 (subsequently referred to in this report as "UNCOE") at its twelfth session (Geneva, 6 December 2024) (see **Addendum 1** to the UNCOE Report). The working group was invited to comment on the draft amendments to the Technical Instructions prior to a detailed review that would be conducted by the DGP Working Group on UN Harmonization

(DGP-WG/UN Harmonization) following DGP-WG/25. The draft amendments, along with any additional amendments proposed by DGP-WG/25, are consolidated with amendments proposed at the 2024 DGP Working Group Meeting (Montreal, 21 to 25 October 2024) (DGP-WG/24) and presented in Appendix A to this working paper. A summary of DGP-WG/25's review is provided in paragraphs 4.1.2.1.2 to 4.1.2.1.9 of this report.

4.1.2.1.1.2 A general comment was raised with the lack of any justification in the UNCOE's report for the amendments. It was explained that although there was no justification for each amendment included in the final report at the end of the UNCOE's biennium, there was in the reports of the Sub-Committee of Experts on the Transport of Dangerous Goods (subsequently referred to in this report as "UN Sub-Committee" produced at each of its meetings convened during the biennium.

4.1.2.1.2 **Part 1 (DGP-WG/25-WP/11)**

4.1.2.1.2.1 The working group suggested the following revisions to the draft amendments:

a) The latest document edition numbers needed to be reflected in the definitions for "GHS", "Manual of Tests and Criteria" and "Model Regulations".

b) The definition for "usable water capacity" added to the Model Regulations should be removed from the draft amendment as it applied to salvage pressure receptacles, which were not permitted for air transport. The panel had decided to include definitions for items not permitted for air transport with an indication that they were prohibited so that users knew not to use them or to reject them for transport. However, this was not an item but rather a property related to salvage pressure receptables, which added no value as a definition in the Technical Instructions.

4.1.2.1.3 **Part 2 (DGP-WG/25-WP/12)**

4.1.2.1.3.1 The working group identified a need for a more extensive review of new provisions for samples of organic substances to be assigned to one of the appropriate entries for self-reactive substances type C and transported under the provisions of 2;4.2.3.2.6, noting that some of the substances referred to were forbidden for air transport. DGP-WG/UN Harmonization would consider distinguishing between those that were and were not forbidden and whether transport should only be permitted under an approval or an exemption. It would also consider whether some of the provisions should be included in the Supplement instead of the Technical Instructions.

4.1.2.1.4 **Part 3 (DGP-WG/25-WP/13)**

4.1.2.1.4.1 The working group provided the following comments and suggested additional revisions to the draft amendments:

a) Cross references to **Fluoroanilines** in Table 3-1 would need to be replaced based on the cross references provided in the UN Model Regulations, given that UN 2941 — **Fluoroanilines** was deleted;

b) SP 310 of the UN Model Regulations excepted cells or batteries from UN 38.3 testing for production runs of not more than 100 cells or batteries or pre-production prototypes sent for testing by subjecting these cells and batteries to the classification criteria in Part 2 while excluding the criteria related to UN 38.3 testing. The amendment was not applicable to the Technical Instructions because the wording of corresponding Special

Provision A88, while intending to achieve the same objective, did not align with the Model Regulations. However, it was questioned if the misalignment between the special provisions created a gap in the Technical Instructions, which did not explicitly make these batteries subject to the classification criteria in Part 2. The requirement was included in the packing instructions for lithium batteries and sodium ion batteries, but not in the packing instruction assigned to batteries not subject to UN 38.3 testing, i.e. Packing Instruction 910 of the Supplement. DGP-WG/UN Harmonization would consider whether there was justification for the misalignment between the Model Regulations and the Technical Instructions and if there was a gap in the Technical Instructions that needed to be closed.

c) Special Provision A226 provided a transition period allowing UN numbers assigned to **Detonators, electric** (UN Nos. 0030, 0255 and 0456) to be used in lieu of UN numbers assigned to **Detonators, electronic** (UN 0511, UN 0512 and UN 0513) until 30 June 2025. The special provision could be deleted from Part 3;3 and the entries it was assigned to, given that the transition period was over.

d) New Special Provision A235 (SP 410 in the Model Regulation), which applied to hybrid batteries containing both lithium ion cells and sodium ion cells, was assigned to all lithium ion, lithium metal and sodium ion entries other than those installed in cargo transport units, given that they were forbidden for transport by air. DGP-WG/UN Harmonization would consider whether the special provision needed to be added to the entries for batteries installed in cargo transport units, along with other applicable special provisions that applied to batteries, so that the information was available to States issuing exemptions. DGP-WG/UN Harmonization would also consider whether the last sentence of the special provision was needed in the Technical Instructions, as it appeared to be a requirement already contained in the associated packing instructions.

e) It was questioned whether it was necessary to incorporate an amendment to SP 145 in the Model Regulations in Special Provision A9 of the Technical Instructions. The special provisions applied to UN 3065 – **Alcoholic beverages** containing more than 24% but not more than 70% alcohol by volume and made them not subject to regulation when carried in receptacles of 5 litres or less in the Technical Instructions and 250 litres or less in the Model Regulations. The Model Regulations also referred to alcoholic beverages of Packing Group III, but the amendment to the Model Regulations replaced this reference with “with more than 24% but not more than 70% alcohol by volume”. It was questioned whether adding this text to the Technical Instructions was necessary, given that it was already part of the name of the substance Special Provision A9 was assigned to and could be misinterpreted to mean that those containing under 24% were subject to regulation. The working group agreed to include it for the sake of alignment with the UN and because it made it clear that the special provision applied to this entry and not the second entry for UN 3065: **Alcoholic beverages** containing more than 70% alcohol by volume.

f) SP 405 in the Model Regulations, which made vehicles not subject to marking and labelling requirements when not fully enclosed by packagings, crates or other means that prevent ready identification, was similar to Special Provision A87 of the Technical Instructions, other than A87 being more generic by referring to articles instead of vehicles because it was assigned to entries in Table 3-1 other than vehicles. The special provision was amended in the Model Regulations to make vehicles that are fully

enclosed subject to the marking and labelling requirements. DGP-WG/UN Harmonization would review the revised wording in SP 405 to consider whether to incorporate a corresponding amendment to A87, recognizing this could effectively eliminate the exception.

g) A reference to **Sodium ion batteries installed in cargo transport unit** added to the eighth paragraph of Special Provision A214 was missing the UN number (UN 3564), which was inconsistent with other references to proper shipping names in the special provision. It would be added.

h) An editorial revision to new Special Provision A238 would be made to remove redundant text. This would create a misalignment with the associated special provision in the Model Regulations, but the working group considered it unnecessary to inform the UN Sub-Committee given that it was purely editorial.

i) Provisions in several special provisions amended in the Model Regulations were either contained in the packing instructions in their entirety or split between special provisions and packing instructions in the Technical Instructions, and the text was sometimes misaligned. There was some discussion on whether some provisions in the Technical Instructions should be moved to special provisions, but the working group agreed that this should not be done unless necessary and with extreme caution. There was a level of stability with the existing framework, and any changes could result in unintended consequences. DGP-WG/UN Harmonization would conduct a more extensive review.

4.1.2.1.5 **Part 4 (DGP-WG/25-WP/14)**

4.1.2.1.5.1 The working group commented and suggested additional revisions to the draft amendments as follows:

a) A new provision was added to SP 188 of the Model Regulations specifying that button cells contained in equipment did not count toward package or consignment limits under which the battery mark was not required for lithium ion, lithium metal and sodium ion batteries excepted from full regulation. The working group agreed that the provision should be added as a note under the corresponding text in the Technical Instructions (Section II of Packing Instructions 967, 970 and 978) (the provision was inadvertently omitted from Packing Instruction 978 in the proposed amendment; it would be added).

b) Packing instructions that included provisions for pre-production protype batteries and low production run batteries to be excepted from testing in accordance with UN 38.3 were misaligned with corresponding provisions in the UN Model Regulations. DGP-WG/UN Harmonization would conduct a more extensive review of these provisions.

4.1.2.1.6 **Part 5 (DGP-WG/25-WP/15)**

4.1.2.1.6.1 There were no objections to the amendments to Part 5 presented to DGP-WG/25 and no comments raised.

4.1.2.1.7 **Part 6 (DGP-WG/25-WP/16)**

4.1.2.1.7.1 There were no objections to the amendments to Part 6 presented to DGP-WG/25 and no comments raised.

4.1.2.1.8 **Attachment 1 (DGP-WG/25-WP/19)**

4.1.2.1.8.1 There were no objections to the amendments to Attachment 1 presented to DGP-WG/25 and no comments raised.

4.1.2.1.9 **Future work**

4.1.2.1.9.1 Panel members were invited to further review the amendments to Parts 1 through 6 and the Attachment to the Technical Instructions, as amended by DGP-WG/25 (see Appendix A to this report). Any discrepancies should be reported to the Rapporteur of DGP-WG/UN Harmonization through the Secretary, preferably by the end of June 2025. DGP-WG/UN Harmonization would conduct an extensive review of the amendments proposed along with comments received and submit its report proposing final amendments to DGP/30 for approval.

4.1.3 **Agenda Item 1.3: Develop proposals, if necessary, for amendments to the *Supplement to the Technical Instructions for the Safe Transport of Dangerous Goods by Air* (Doc 9284SU) for incorporation in the 2027-2028 Edition**

4.1.3.1 **Develop proposals, if necessary, for amendments to the Supplement to the Technical Instructions for the Safe Transport of Dangerous Goods by Air (Doc 9284SU) for incorporation in the 2027-2028 Edition (DGP-WG/25-WP/20)**

4.1.3.1.1 The meeting reviewed amendments to the Supplement to the Technical Instructions to reflect the decisions taken by the UNCOE at its twelfth session. Panel members were invited to further review the amendments (see Appendix B to this report) and advise DGP-WG/UN Harmonization of any discrepancies, preferably by the end of June 2025. DGP-WG/UN Harmonization would consider the comments raised during its extensive review of the amendments and submit final amendments in a working paper to DGP/30 for approval.

4.2 **Agenda Item 2: Managing air-specific safety risks and identifying anomalies (REC-A-DGS-2027)**

4.2.1 **Agenda Item 2.1: Develop proposals, if necessary, for amendments to Annex 18 — *The Safe Transport of Dangerous Goods by Air***

4.2.1.1 There were no proposals developed under this agenda item.

4.2.2 Agenda Item 2.2: 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 2027-2028 Edition

4.2.2.1 Procedures for the Classification of Explosives (DGP-WG/25-WP/2)

4.2.2.1.1 Potential ambiguities in relation to who was responsible for classification of explosives and who were the required providers and recipients of associated information were discussed at DGP-WG/24 (see paragraph 4.1.2.3 of the report). There was general agreement at that meeting that the intent was for an appropriate national authority to be involved with classification. However, there were no explicit requirements for this in the Technical Instructions. A concern with the absence of any requirement for information associated with classification of an explosive to be available to subsequent distributors was also discussed, given the impact the type of packaging had on classification and the potential for them to be repackaged. Two amendment proposals were made to address these issues:

a) a new provision requiring the explosive classification to have been approved, made or agreed by an appropriate national authority. The name of the specific State that needed to approve was not included with the intent of providing flexibility on which one it should be based on capabilities and the degree of risk;

b) a new provision requiring manufacturers and subsequent distributors of explosive substances and articles to make the classification available. It aimed to ensure that shippers were aware of and complied with explosive classifications by making the classification accessible to all parties in the supply chain.

4.2.2.1.2 While there was support for competent authority involvement in classification for air transport and introducing provisions aimed at ensuring that packaging used for re-packaged explosives was compliant based on their original classification, the working group did not reach consensus on the approach taken in the proposal to achieve this. There were concerns that some States excepted some explosive divisions from classification involving an appropriate competent authority, implications that a physical classification document was required over an electronic classification record and that operators might demand that a classification document accompany consignments of explosives. Interested members agreed to work together to develop a proposal focussing on the need for compliant packaging for DGP/30.

4.2.2.2 Report of the ICAO DGP Working Group on Training (DGP-WG/25-WP/3)

4.2.2.2.1 A draft ANC job card for improving *Guidance on a Competency-based Approach to Dangerous Goods Training and Assessment* (Doc 10147) to make it less theoretical and more practical to implement was presented to the meeting. The need to improve the guidance was based on research conducted by DGP-WG/Training (see paragraph 4.2.2.1 of the DGP-WG/24 report).

4.2.2.2.2 The job card was supported in principle, but concerns were raised that the training methodology provided in Doc 10147 was perceived as mandatory by some States and by the ICAO Universal Safety Oversight Programme (USOAP), when this was never the intent. The first sentence of the draft job card referred to the new training provisions in the Technical Instructions as being mandatory from 2023, which some felt reinforced this perception. The working group was comfortable deleting this sentence, as it was considered superfluous to the intent of the job card. The working group reiterated that while the need for personnel to be competent before performing dangerous goods functions was mandatory, the approach used to achieve this was not. However, the working group recognized that Doc 10147 was the

sole guidance provided by ICAO for dangerous goods training, and it did not effectively support alternate methods of training. This perhaps contributed to the incorrect perception that implementing the training methodology provided in Doc 10147 was mandatory. It therefore suggested that DGP-WG/Training develop more general guidance for States to review dangerous goods training programmes that could be incorporated in the new manual to support implementation of the amendments to Annex 18 that DGP-WG/Annex 18 was developing, and to ensure that this guidance emphasized that the training methodology provided in Doc 10147 was not mandatory.

4.2.2.2.3 The job card also included an action to review the training provisions in the Technical Instructions and to eliminate any identified gaps. Some expressed an opposition to this, noting that the provisions were only recently amended and that there was a need for stability and the introduction of conflicts with training provisions adopted by other modes of transport through the UN Model Regulations.

4.2.2.2.4 The job card would be revised based on the discussions and circulated among panel members for approval following DGP-WG/25.

4.2.2.3 Quantity of Dangerous Goods, Number and Type of Packagings to be Stated on the Dangerous Goods Transport Document (DGP-WG/25-WP/5)

4.2.2.3.1 An amendment to the provisions related to information required to be included on the dangerous goods transport document in addition to the dangerous goods description in Part 5;4.1.5.1 of the Technical Instructions was proposed. Several inconsistencies and ambiguities were noted, particularly concerning net quantities and limited quantities, suggesting that text should be reorganized for clarity and that certain terms should be standardized throughout the document. A revised amendment, which further standardized terminology, removed superfluous text, added additional paragraph numbering to enhance clarity, and added requirements for information related to consumer commodities in limited quantities included in Packing Instruction Y963, was agreed. It is included in Appendix A to this working paper.

4.2.2.4 Harmonization of Terminology: Future Proposals (DGP-WG/25-WP/8)

4.2.2.4.1 Several terms were used interchangeably in the dangerous goods publications. The working group supported efforts to standardize the terms, unless there was a valid reason to deviate. This would help prevent inconsistent interpretation of the provisions by users and when translating the provisions. The working group provided specific input on the use of the following:

a) “Stowage” versus “storage”:

   There was general agreement that stowage applied to the arrangement and handling of goods during transit, ensuring safe transport, and storage applied to long-term safekeeping of the goods, usually in a warehouse;

b) “Carry” or “carriage” versus “transport”:

   DGP-WG/Annex 18 had standardized the language in the draft amendment to Annex 18 by using “carry” or “carriage” with respect to passenger baggage and “transport” with respect to cargo and mail. Another viewpoint was that “transport” covered everything, given that the word was part of the title to Annex 18 and to the Technical Instructions, and carriage applied to the operator’s functions. Yet another

viewpoint was that “transport” involved moving larger items using vehicles or machinery and “carriage” involved moving smaller objects by hand; and

c) References to regulatory authorities:

Inconsistencies between use of the terms “appropriate national authority”, “competent authority” and other terms were used throughout the Technical Instructions. DGP-WG/Annex 18 had attempted to harmonize the terms in the proposed amendment to Annex 18, but did not look at the Technical Instructions or the Supplement. The terms used should align with terminology in Annex 18.

Members were invited to provide other inconsistencies they might identify through the Secretary. Work at standardizing the terms would be undertaken during the next biennium.

4.2.2.5 Harmonization of Terminology: Passengers and Crew (DGP-WG/25-WP/9)

4.2.2.5.1 An amendment to replace several references to “passengers or crew” with “passengers and crew” in the Technical Instructions and its Supplement was proposed for the sake of consistency. It was agreed that “passengers or crew” should be used within the provisions, but that “passengers and crew” should be used in titles and headings. A revised amendment was agreed. The amendment to the Technical Instructions It is included in Appendix A to this working paper and the amendment to the Supplement is included in Appendix B to this working paper.

4.2.2.5.2 The working group was also invited to provide input on whether references to “crew” should be replaced with “crew member”, given that the latter was a defined term in Annex 6 — *Operation of Aircraft*. It concluded that the term “crew” should be maintained as it referred to more than one person and collectively to cabin crew and flight crew members. This was consistent with terminology used in Annex 6.

4.2.2.6 Harmonization of Terminology: Approval or Specific Approval (DGP-WG/25-WP/22)

4.2.2.6.1 Part 1;4.1.2 made it clear that all operators were required to establish a dangerous goods training programme regardless of whether they had specific approval to transport dangerous goods as cargo in accordance with Annex 6. However, the wording of the provision referred simply to an approval to transport dangerous goods and not to a specific approval. An amendment replacing “approval” with “specific approval” to align with the terminology in Annex 6 was agreed in principle, subject to potential editorial revisions to the language used to ensure consistency with Annex 6 (e.g. “have a specific approval” or “hold a specific approval” or “have been issued a specific approval”). Several other references to “approval” in the Technical Instructions that should potentially be replaced with “specific approval” were noted during the discussion. These, along with the potential editorial revisions, would be addressed in a new proposal to DGP/30. The amendment that was agreed in principle is included in Appendix A to this working paper in square brackets pending agreement on the wording at DGP/30.

4.2.2.7 Duplication of Definitions (DGP-WG/25-WP/23)

4.2.2.7.1 The meeting continued discussions from DGP-WG/24 on whether it was appropriate for some definitions related to explosive substances to be included both with the classification criteria for explosives in Part 2;1 and in the general definitions in Part 1;3 (see paragraph 4.1.2.1 of the DGP-WG/24 Report). A proposal to delete the definitions from Part 1;3 to eliminate the potential for misalignment and

to maintain alignment with the UN Model Regulations was made to that meeting but not agreed because some members thought the duplication was intentional for a reason. They also emphasized the need to keep the definition in Part 1;3, because the term could apply to other substances that did not meet the criteria to be classified as a Class 1 explosive. A revised proposal presented to DGP-WG/25, which maintained the terms in Part 1;3 but replaced the definition of the term with a reference to Part 2;1.2, was agreed. The amendment is included in Appendix A to this working paper.

4.2.2.7.2 DGP-WG/24 also discussed whether an additional sentence in the definition for "explosive substance" included in Part 1 but not Part 2 or the UN Model Regulations was necessary. It stated: "A substance which is not itself an explosive but can form an explosive atmosphere of gas, vapour, or dust is not included." It was identified after DGP-WG/24 that while the sentence was not included in the definition in Part 2 or the UN Model Regulations, it was included outside of the definition in Part 2;1.1 a). Deleting the definition in Part 1;3 would therefore have no impact on this provision.

4.2.2.8 Number of Spare Fuel Cell Cartridges Applicable to Packing Instruction 497 (DGP-WG/25-WP/24)

4.2.2.8.1 Packing Instruction 497, which applied to UN 3476 – **Fuel cell cartridges packed with equipment**, limited the number of fuel cell cartridges in the intermediate packaging to the minimum number required to power the equipment plus two spares. This was inconsistent with similar limitations in Packing Instructions 966, 969, and 977 which limited the number of cells or batteries in each package to not more than the number required for the equipment's operation, plus two spare "sets". Referring to "sets" was added to these packing instructions to clarify intent. It was suggested that not adding it to Packing Instruction 497 was an oversight.

4.2.2.8.2 While not opposing the amendment, the justification for two spare sets was questioned during the discussion. It was explained the intention was to prevent shippers from bypassing the regulations by shipping more spares with equipment than was necessary to circumvent the prohibition on the transport of batteries shipped without equipment. Two sets was considered reasonable to meet needs without significantly increasing energy.

4.2.2.8.3 An amendment to align the language with Packing Instructions 966, 969 and 977 was agreed. It is included in Appendix A to this working paper.

4.2.2.9 Inadvertent Omission of Requirements Applicable to Unpackaged Articles (DGP-WG/25-WP/27)

4.2.2.9.1 Some articles containing dangerous goods, such as vehicles and large equipment containing lithium batteries, were not required to be packaged, because the level of protection to the dangerous goods contained within was considered to be equivalent to the protection provided to packaged dangerous goods. Several provisions in the Technical Instructions were identified as being inadvertently excluded from requirements because the provisions referred to packages or overpacks but not to unpackaged articles. While there were no reports of this omission leading to non-compliance, the working group agreed that it created a legal gap that should be addressed. A proposal would be developed for DGP/30. The author would work with the Secretariat to ensure that potential omissions in Annex 18, as amended by DGP-WG/Annex 18, would also be addressed.

4.2.2.10 **Challenges in the Supply Chain for Air Transport Of Dangerous Goods (DGP-WG/25-WP/30)**

4.2.2.10.1 The working group was invited to discuss the impact that the increasingly complex supply chain had on the safe transport of dangerous goods, specifically in relation to manufacturers outsourcing their dangerous goods functions to third party logistic providers. Traditionally, manufacturers performed all functions defined under the shipper's responsibilities in the Technical Instruction that were related to their dangerous goods shipments, including classifying, identifying, packing, marking, labelling and documenting. This traditional method had shifted to manufacturers outsourcing functions to third party logistic providers. However, they did not always ensure the third party was competent to perform these functions or that they had the necessary information needed to achieve compliance, such as information related to hazard classification, inner packings, and testing. The manufacturer needed to be competent enough to relay the necessary information to the third party and to assess whether the third party was competent to perform their delegated functions. Appointing a dangerous goods safety advisor responsible for advising on the safe transport of dangerous goods was a requirement in some States through regulations for other modes of transport. The working group was invited to discuss whether this might be beneficial in enhancing the international safe transport of dangerous goods and on whether clarification on the roles and responsibilities of the various entities within the supply chain was needed.

4.2.2.10.2 The working group acknowledged the challenges described and expressed support for the development of guidance material. While recognizing that the appointment of a person responsible for advising on the safe transport of dangerous goods could be a useful approach in some States, the group also noted that it might not be feasible or an optimal solution in all. The working group emphasized the importance of allowing States the flexibility to tailor their safety measures in line with the size, complexity, and operational needs of their transport systems, and within the constraints of their respective legal frameworks.

4.2.2.10.3 The working group agreed that no changes to the core requirements in the Technical Instructions should be made, but there was support for introducing provisions to clarify that while an entity wanting to ship dangerous goods could contract third parties to do it, they retained overall responsibility for compliance. This could be based on similar provisions in Annex 6 related to third parties contracted by the operator.

4.2.2.10.4 The working group recognized that a lack of awareness of the responsibilities of the different entities in the supply chain, inadequate training, and repeated non-compliance had persisted even when supply chains were simple. Guidance material was needed to assist States and operators in addressing these shortcomings as part of their State safety programmes and safety management systems.

4.2.2.11 **Proposal for Modifying the UN Marking Format for Category A Infectious Substances (UN 2814 and UN 2900) (DGP-WG/25-WP/31)**

4.2.2.11.1 The marking requirements for packagings intended for the transport of infectious substances of Category A specified that the text "CLASS 6.2" must be included with the mark on the package. An amendment replacing "CLASS" with "DIVISION" was proposed, given that 6.2 was a division of Class 6 and not the class. It was suggested that this would improve clarity for stakeholders involved in handling these substances. While acknowledging that the current text was inconsistent with the provisions for classification of dangerous goods in the Technical Instructions, the working group did not support the proposal. The requirement had been in place for many years without any safety issues. It was based on provisions in the Agreement concerning the International Carriage of Dangerous Goods by Road (ADR), which did not have divisions. Amending the text would have a significant impact on cost and on multimodal

harmonization, and it would require a lengthy transition period. If there was support for it, it would need to be agreed at the UN Sub-Committee first. A suggestion to include a note in the Technical Instructions indicating that there was an inconsistency and the reason for it would be considered and potentially proposed to DGP/30.

4.2.2.12 Proposal for the Standardization of Documentation in the Transportation of Dangerous Goods (DGP-WG/25-WP/33)

4.2.2.12.1 The working group was invited to consider a proposal to revise the provision requiring the dangerous goods transport document to include a certification declaring compliance by specifying that the signatory must be trained and certified to perform the shipper's functions. It was also invited to consider a proposal to prohibit an operator from accepting dangerous goods unless the dangerous goods transport document had been signed by a trained shipper or designated representative. It was suggested that an untrained person was more likely to sign a document to accompany dangerous goods not in compliance with the Technical Instructions because of a lack of awareness of the safety risks or penalties that might ensue.

4.2.2.12.2 While sympathetic to the objective of the proposal, the working group did not consider the amendment to be necessary, as the signatory was already obliged to be competent to perform this function through training and assessment in accordance with Part 1;4 of the Technical Instructions. Requiring the signatory to be trained and certified to perform all the shipper's functions was contradictory to what was required by the training provisions in the Technical Instructions, which would make the signatory subject to training on all shipper functions a requirement only if they performed all the shipper functions. Discussion also turned to large organizations where the document could be "signed" by someone who had not seen the package and was reliant on a systems-based approach that a complying package and documentation was put together. Finally, the working group believed that the proposed amendment to the acceptance procedures would place an undue burden on the operator, who would be challenged to confirm compliance, without any real benefit. Several acknowledged that shippers did not always comply with this requirement in their States as well, but this was managed through oversight, outreach and enforcement activities. The working group did support guidance material to assist States and operators in managing the risk.

4.2.3 Agenda Item 2.3: Develop proposals, if necessary, for amendments to the *Supplement to the Technical Instructions for the Safe Transport of Dangerous Goods by Air* (Doc 9284SU) for incorporation in the 2027-2028 Edition

4.2.3.1 Harmonization of Terminology: Passengers and Crew (DGP-WG/25-WP/9)

4.2.3.1.1 An amendment to replace a reference to "passengers or crew" with "passengers and crew" in Attachment II to Chapter 8 was agreed under Agenda Item 2.2 in conjunction with similar amendments to the Technical Instructions (see paragraph .4.2.2.5 of this report). It is included in Appendix B to this working paper.

4.2.3.2 **Recommended Maximum net quantity per article/package for articles consigned under A2 approvals (DGP-WG/25-WP/25)**

4.2.3.2.1 An amendment to the packing instructions for articles containing dangerous goods permitted on cargo aircraft through Special Provision A2 contained in the Supplement to the Technical Instructions was proposed to remove an inconsistency between the heading in the quantity limit table and its introductory text and to include a reference to an unpackaged article, which was permitted by the packing instructions (Packing Instructions 221, 379, 400, 600, 877, and 973). A revised amendment was agreed. It is included in Appendix B to this working paper.

4.2.3.3 **Special Provisions A1 And A2 And The Scope Of The Supplement To The Technical Instructions (DGP-WG/25-WP/35)**

4.2.3.3.1 The meeting was invited to discuss whether the Supplement to the Technical Instructions was strictly guidance material for States or if some of the provisions were intended to be legally binding. All acknowledged that the Supplement contained information primarily of interest to States. Some considered all of it guidance, while others considered parts of it, such as the quantity limitations in Table S-3-1 and the packing instructions, as legally binding. Practices varied among States: some allowed deviations from the conditions for issuing approvals in the Supplement, provided an equivalent level of safety could be demonstrated, whereas others permitted such deviations only under the exemption process. The latter view aligned with the language in Special Provisions A1 and A2 of the Technical Instructions, which allowed dangerous goods normally forbidden for transport on a passenger or both a passenger and cargo aircraft to be transported under an approval, provided the quantity of dangerous goods did not exceed the value in the supplementary dangerous goods list and the dangerous goods were packed in accordance with the packing instruction assigned to them. However, not all substances listed in the supplementary list that were permitted to be transported under an approval had quantity limits or packing instructions assigned to them. Some members reported that their State interpreted this to mean that granting an approval was not possible. However, this would question the logic of assigning Special Provisions A1 or A2 to the substances. It was suggested that not having quantity limits or packing instructions assigned to entries for which Special Provisions A1 and A2 applied might be an oversight that needed to be corrected.

4.2.3.3.2 The working group agreed that clarity was needed but that amendments should not be developed before a thorough study was conducted on the original intent of the Supplement, including justification for the use of “must” versus “should”. The rapporteur of DGP Working Group on the Supplement (DGP-WG/Supplement) would work with the Secretary to research the evolution of the Supplement and then work on improving the Supplement through DGP-WG/Supplement.

4.2.4 **Agenda Item 2.4: Development of proposals, if necessary, for amendments to the *Emergency Response Guidance for Aircraft Incidents Involving Dangerous Goods* (Doc 9481) for incorporation in the 2027-2028 Edition**

4.2.4.1 **Amendments to the Drill Codes in the Emergency Response Guidance to Reflect Amendments to the Dangerous Goods List Made to Align with the UN Model Regulations (DGP-WG/25-WP/21)**

4.2.4.1.1 The meeting reviewed amendments to the drill codes in the *Emergency Response Guidance for Aircraft Incidents Involving Dangerous Goods* (Doc 9481) consequential to the decisions taken by

UNCOE. The working group agreed to a suggestion to order drill codes with two letters alphabetically. The amendments are presented in Appendix C to this working paper. Panel members were invited to further review the amendments and advise DGP-WG/UN Harmonization of any discrepancies, preferably by the end of June 2025. DGP-WG/UN Harmonization would consider the comments raised and submit final amendments in a working paper to DGP/30 for approval.

4.2.4.1.2 Challenges operators faced expanding database fields for drill codes in computer systems were raised separate from the proposed amendments during the discussion. The DGP was encouraged to refrain from adding more than three characters in the future, while also recognizing that there was a need to not compromise the completeness of emergency response information.

4.3 Agenda Item 3: Facilitating safe transport of dangerous goods by air *(Ref: REC-A-DGS-2027)*

4.3.1 Guidance on What Constitutes "Personal Use' in the Context of Permitted Items in Passenger and Crew Baggage (DGP-WG/25-WP/1)

4.3.1.1 The passenger provisions prohibited carriage of dangerous goods unless they were permitted in accordance with Table 8-1 and were for personal use. A concern that the broad requirement for dangerous goods permitted for carriage by passengers and crew to be for personal use only might result in an operator not permitting medical personnel to carry items of dangerous goods for urgent medical care was raised at DGP-WG/24 (see paragraph 4.3.1 of the report) and at the twenty-ninth meeting of the DGP (DGP/29, 13 to 17 November 2023). Introducing an exception for medical personnel in Table 8-1 was discussed, but members were reluctant to introduce exceptions to the provisions for specific items. There was general agreement that a medical specialist should be able to carry the devices, provided they were not carrying multiple devices for commercial or sales purposes, and there was support for the development of guidance material to assist operators with consistent implementation of the provisions.

4.3.1.2 A new proposal was presented to DGP-WG/25 which added a note under Part 8;1.1.1 to clarify the intent of "personal use only" with these principles in mind. While there was general support for the intent, several saw a need for further clarity to remove any ambiguity and prevent any unintentional broadening of the scope through implementation. A majority supported a revised proposal to address this need, although there was one objection. This was not to the intent of the proposal but rather to its focus on clarifying what items could be considered "personal use" rather than focusing on what items were not permitted. It was suggested that simply stating that items for personal use could not include items carried for sales or distribution without listing examples of what was included would be unambiguous, clear and would prevent any unintentional broadening of the intended scope. The working group agreed to accept the wording supported by the majority while being open to considering a revised proposal at DGP/30 should one be presented. The amendment is included in Appendix A to this working paper.

4.3.2 Illicit Substances under chain of Custody by Law Enforcement Agencies (DGP-WG/25-WP/28)

4.3.2.1 Amendments to Part 8;1.1.8, Part 8;1.1.9, and Table 8-2 were proposed to facilitate the transport of samples of illicit substances of Class 3 or Division 6.1 by law enforcement agencies under chain of custody. They were made to address challenges carrying such samples in aircraft cabins, which was necessary to maintain chain of custody and which lead to the reliance on difficult to obtain State exemptions. The amendments incorporated comments made during previous discussions at DGP/29 (see paragraph 11.4 of the report) and DGP-WG/24 (see paragraph 4.3.7 of the report). They included quantity limitations for liquids and solids to mitigate safety risks associated with toxic vapours and potential spills,

packing requirements, the need for prior approval from the State of the Operator and a requirement for the pilot-in-command to be informed about the location of the samples on board.

4.3.2.2 There was support for the intent of the proposal with others noting similar challenges in theirStates. However, while many of the concerns raised during the previous discussions had been addressed, further improvements were needed before the panel could fully support it. The following comments were raised during the discussion:

a) Two options for packing requirements were presented, one simply requiring that the substances be packed in accordance with packaging requirements for excepted quantities and the other embedding these requirements in Table 8-1. There was more support for embedding the requirements, noting prior discussions on the need to remove cross references to other parts of the Technical Instructions from the passenger provisions.

b) The quantity limitations proposed for liquids aligned with quantity limits permitted for excepted quantities assigned code E1, while those for solids exceeded these amounts. Members questioned this inconsistency, with a suggestion that exceeding the limits should only be permitted if approved. Members also questioned the absence of other requirements applicable to excepted quantities, including tests for packages.

c) There was support for a requirement for approval from the State of the Operator, with some thinking the State of Origin should also be involved. It was suggested that the provisions in Table 8-2 be moved to the Supplement, given the need for an approval.

d) Some believed there would eventually be requests to carry substances other than those of Class 3 or Division 61, so it was better to widen the scope of the provision to avoid having to make future amendments.

e) There were editorial suggestions aimed at ensuring consistent use of terminology.

4.3.2.3 The proposer requested that an approved amendment be incorporated into the current edition of the Technical Instructions by way of an addendum. The chair noted the need for strong justification to issue an addendum that did not address a safety risk. The Secretary explained, in response to a query regarding the difference between an addendum and a corrigendum, that the latter addressed *editorial errors* and was not subject to Council approval while the former addressed a need to *change* the provisions and was subject to Council approval. There needed to be strong justification for recommending an addendum.

4.3.2.4 A revised proposal taking the points raised during the discussion into account would be submitted to DGP/30.

4.3.3 Proposed amendment to delete the definitions of passenger aircraft and cargo aircraft (DGP-WG/25-IP/7)

4.3.3.1 An amendment was proposed to address inconsistencies between States as to who was allowed on board a cargo aircraft carrying dangerous goods not permitted on a passenger aircraft. It was the latest of several different proposed amendments developed to achieve this objective, the first at the twenty-seventh meeting of the DGP (DGP/27, Montreal, 16 to 20 September 2019) (see paragraphs 8.1.1 and 8.1.2 of the report) and the latest at DGP-WG/24 (see paragraph 4.8.2 of the report).

4.3.3.2 The proposal to DGP-WG/25 deleted the definitions for passenger aircraft and cargo aircraft in the Technical Instructions and listed who could be on an aircraft dedicated to cargo operations in a new paragraph in Part 7;2.4.1 of the Technical Instructions. The list was based on the original proposal presented to DGP/27, which amended the list of who was not considered a passenger contained in the definition for "passenger aircraft". While not objecting to the intent of the proposal, several noted the need to revise some of its terminology. The Secretary, while acknowledging that the list of who could be on board an aircraft dedicated to cargo operations was based on a proposal that DGP/27 approved, reminded the working group that the ANC had not accepted that proposal and that the new one was essentially the same. There was a view that the ANC did not support the DGP/27 proposal because the amendment aimed to affect a change in regulation through a definition, which should be avoided. The new proposal attempted to address this by creating a new provision instead of revising the wording in a definition. However, the Secretary noted that not regulating through a definition was secondary to the main reason the DGP/27 proposal was not supported, which was that the ANC "... did not consider the rationale for modifying the definition for passenger aircraft to be relevant to the Annex 18 provisions it supported and concluded that the operational impact from distinguishing between passenger and cargo aircraft should be addressed in the context of Annex 6 (see the Supplement to the DGP/27 report, paragraph 1.2).

4.3.3.3 There had been several different proposed amendments developed to address the issue since the first one at DGP/27, each objected for various reasons. The Secretary would concisely document the proposed amendments and reasons they were objected to assist in drafting a new proposal, expected to be presented at DGP/30.

4.4 Agenda Item 4: Managing safety risks posed by the carriage of energy storage devices by air *(Ref: Job Card DGP.003.05)*

4.4.1 Report of the ICAO DGP Task Force on Mobility Aids (DGP-WG/25-WP/4)

4.4.1.1 The working group reviewed draft terms of reference and a plan of action for an ad hoc DGP task force on mobility aids (DGP-TF/MA) to address lithium-ion battery-powered mobility aids safety issues highlighted during DGP-WG/24 (see paragraph 4.4.2 of the report). The initial discussions on the need for the work focused on lithium-ion battery powered mobility aids with batteries that remained installed, as there were no watt-hour rating limits established for them in the Technical Instructions. However, it was agreed to widen the scope to all battery-powered mobility aids including those with removable batteries carried by the passenger in the cabin, given that there were safety risks associated with these as well.

4.4.1.2 The first task for the task force would be the conduct of a specific safety risk assessment with the support of the DGP Working Group on Electronic Storage Devices (DGP-WG/Electronic Storage Devices). It was envisioned that DGP-TF/MA's work could be leveraged by work already done by DGP-WG/Electronic Storage Devices. The need for close coordination with the Flight Operations Panel (FLTOPSP) Safe Carraige of Goods Specific Working Group (SCG-SWG) was highlighted, given that it had been tasked by the ANC to develop procedures for preventing and responding to incidents involving lithium batteries carried by crew, passengers and the operator aboard the aircraft (ANC job card SCGSWG.003.01).

4.4.1.3 There was much support for the terms of reference and action plan. Some editorial revisions would be made to the plan of action to improve clarity and then circulated among members. Recommendations would be developed by the task force for DGP/30.

4.4.2 **Low Production Run Cells and Batteries: Harmonization of Text Between 2;0.6.2 and Special Provision A88 (DGP-WG/25-WP/6)**

4.4.2.1 An amendment to address a misalignment between the classification criteria for articles containing cells or batteries in Part 2;0.6.2 and Special Provision A88 of the Technical Instructions was proposed. A revised amendment that corrected an additional inconsistency with the UN Module Regulations was agreed. The amendment addressed editorial inconsistencies along with a more substantive inconsistency where Special Provision A88 placed an annual cap on the exception from UN 38.3 for production runs of not more than a 100 cells or batteries while 2;0.6.2 did not. It is included in Appendix A to this working paper.

4.4.3 **Harmonization of Terminology: Packing Instructions 965 and 966 DGP-WG/25-WP/10)**

4.4.3.1 An amendment to the general requirements in Sections IA.1 and 1B.1 of Packing Instruction 965 was proposed to replace references to "may only be shipped" with "may only be offered for transport" with respect to the 30 per cent state of charge limitation. This was consistent with terminology used elsewhere in the packing instruction and with similar provisions in Packing Instruction 966. The amendment was agreed. It is included in Appendix A to this working paper.

4.4.4 **Harmonization of Provisions for Lithium-Ion and Lithium-Polymer Batteries Packed With or Contained in Equipment Under Section I Of Packing Instructions 966 and 967 DGP-WG/25-WP/32)**

4.4.4.1.1 The working group was invited to consider a proposal to require UN specification packaging for lithium ion batteries contained in equipment packed in accordance with Section I of Packing Instruction 967. It was proposed that this would provide added risk mitigation against the consequences of thermal runaway and ensure consistency with the requirements for lithium ion batteries packed with equipment in accordance with Section I of Packing Instructions 966. It was suggested that the lack of consistency complicated the provisions, which increased the risk of non-compliance. It was also suggested that the risk of thermal runaway was greater than for batteries packed on their own, because of the potential for the equipment to be activated.

4.4.4.1.2 The working group did not support the amendment proposed. It believed the protection to the batteries provided by the equipment itself was sufficient. Several incidents and accidents involving lithium batteries were cited in the proposal, but the working group did not consider there to be clear evidence that UN packaging would have prevented them. The amendment was not agreed.

4.4.5 **Report of the Dangerous Goods Panel Working Group on Energy Storage Devices (DGP-WG/Energy Storage Devices) DGP-WG/25-IP/5)**

4.4.5.1 The working group was provided an update on the activities of the DGP Working Group on Energy Storage Devices (DGP-WG/Electronic Storage Devices) to support ANC job card DGP.003.05: Mitigating safety risk posed by the carriage of lithium batteries by air. It had introduced several enhancements to safety measures for the carriage of lithium batteries, including:

a) improving the visibility of shipments of lithium batteries by removing exceptions for batteries packed on their own;

b) reducing the risk of thermal runaway by expanding existing 30 per cent state of charge limits to batteries packed with equipment;

c) improving the protection of batteries by strengthening the packing requirements for batteries packed with equipment and batteries contained in equipment that are not subject to UN packaging performance requirements; and

d) assisting States granting approvals to ship lithium ion batteries at higher states of charge through the development of guidance material included in the Supplement to the Technical Instructions.

4.4.5.2 Three action items on the ANC job card remained open, i.e. the development of a performance-based packaging standard, an effective hazard classification system, and simplified provisions. Completion of the packaging standard and hazard classification system were dependent on output from external groups, i.e. the SAE G27 committee developing the performance based standard and the UN Sub-Committee developing the hazard classification system. The packing instructions had been simplified since the ANC job card was initiated, but this was an on-going process. The working group agreed that this action item should be recurrent and noted the work accomplished by DGP-WG/Electronic Storage Devices with appreciation.

4.4.6 **Update on the development of a hazard-based classification system for lithium batteries by the UN informal working group on hazard-based classification of lithium batteries and cells (DGP-WG/24-IP/6)**

4.4.6.1 DGP-WG/25 was provided an update on the work of an informal working group on the hazard-based classification system for lithium cells and batteries established by the UN Sub-Committee (UN-IWG). This was a follow-up to an update given at DGP-WG/24 (see paragraph 4.4.8 of the report). The following was highlighted:

a) UN-IWG met from 4 to 7 March 2025 in Shanghai, China.

b) UN-IWG reviewed testing protocols and identified the need for a new test to assess the flammability of vented battery gases, recognizing that it varied depending on the battery's state of charge.

c) UN-IWG agreed to distinguish between lithium metal and lithium ion/sodium ion cells and batteries and between cells or batteries alone and those packed with/contained in equipment. It estimated four or five hazard categories for each, which would lead to sixteen or twenty new UN entries.

d) A majority of UN-IWG members supported allowing a battery to be classified as a less hazardous category at reduced states of charge for the purpose of packing and hazard communication. However, some raised concerns over the ability of downstream shippers to appropriately use a system where the same battery could be transported under multiple descriptions based only on the state of charge.

e) UN-IWG reviewed initial proposals for new packing instructions with the aim of aligning them with the identified battery categories.

4.4.6.2 There were some concerns expressed at DGP-WG/25 with having the same battery or cell categorized differently depending on the state of charge and that the new system might make the lithium battery provisions even more complex, which went against the ANC's directive to simplify the provisions job described on ANC job card DGP.003.05. The need for DGP to communicate any concerns it might have on the system under development to the UN Sub-Committee of Experts was emphasized. Panel members were encouraged to review the latest proposals from the UN-IWG and to prepare to discuss any concerns at DGP/30. The Secretary would then communicate the concerns to the UN Sub-Committee.

4.4.7 **Lithium battery related cabin fire risks – an emerging safety issue in the Republic of Korea (DGP-WG/25-IP/8)**

4.4.7.1 The working group was briefed on an accident that occurred on 28 January 2025 in the Republic of Korea involving an aircraft that was destroyed by a fire likely initiated by a short circuit in a lithium ion battery stored in an overhead compartment. It occurred shortly after boarding was completed and after the aircraft's doors were closed in preparation for pushback. There were no fatalities, thanks to a prompt response by the crew, but there were some serious and several minor injuries that occurred during the evacuation. While the investigation was still in progress and no final conclusions had been reached, the accident highlighted the fire risk posed by lithium batteries in the aircraft cabin. The State took immediate action by implementing enhanced measures to ensure compliance with the Technical Instructions and adding additional national requirements to manage the risks associated with lithium-ion batteries and e-cigarettes. These included a requirement for them to be carried on the person or stored in seat pockets, a limit of five spare batteries per passenger unless there was prior approval to carry more, and a prohibition on charging power banks using seat power outlets or other power banks. However, concerns remained regarding the effectiveness of short-circuit prevention methods, noting that they did not address the risk of an internal short, and the effectiveness of battery quantity limits on flights. Concerns were compounded by recent increases in incidents and accidents involving lithium batteries. The working group expressed its appreciation for the briefing and agreed that the safety risks associated with the carriage of lithium batteries in the cabin should be included on the agenda for DGP/30. It noted the need for further details regarding emergency response efforts and the quality of the battery involved to ensure an effective assessment of the safety risks. However, this would likely only be available once the investigation was complete, which could take some time. While recognizing the need for a thorough investigation, the working group noted that this meant that potential safety gaps would remain unmitigated. It therefore agreed that it would be best to consider what information was available. Safety bulletins had been issued by several States and organizations in the aftermath of the accident emphasizing the need for greater awareness of regulatory requirements, with some imposing requirements beyond those contained in the Technical Instructions. The Observer nominated by the European Union Aviation Safety Agency (EASA) reported that her agency issued a safety information bulletin which consolidated previous guidance on the subject. It aimed to simplify information for passengers, clarify what could and could not be carried, and encourage national authorities to broadly disseminate the information.

4.4.7.2 The working group acknowledged that the ANC had assigned the FLTOPSP-SCG-SWG with developing procedures for preventing and responding to incidents involving lithium batteries carried by crew, passengers and the operator aboard the aircraft (ANC job card SCGSWG.003.02). The Secretary would ensure that the specific working group was provided all the information provided to the DGP.

4.4.8 **Update on research related to lithium batteries conducted by the European Union Aviation Safety Agency (DGP-WG/25-IP/9)**

4.4.8.1 The meeting was presented with an update on the following research activities at EASA supporting the management of safety risks associated with lithium batteries:

a) its AIRPED project focusing on lithium battery fires in cargo compartments; and

b) its LOKI-PED project focussing on fire and smoke risks from lithium batteries in the cabin and cockpit.

4.4.8.2 The objective of the AIRPED project was to evaluate the effectiveness of fire suppression systems and to generate data for revisions to minimum performance standards. A description of the tests performed was provided. The final report and project deliverables were expected by the end of the second quarter 2025.

4.4.8.3 The object of the LOKI-PED project was to assess the risk associated with the carriage of lithium batteries and PEDs in the aircraft cabin and cockpit and to determine if additional mitigation measures were necessary. A description of tests performed was provided along with the outcome of an assessment on emergency response procedures and additional mitigation measures.

4.4.8.4 The working group expressed its great appreciation for the research and analysis done and the excellent update provided. The information would help support future decisions of the panel.

4.5 **Agenda Item 5: Clarifying State oversight responsibilities in Annex 18** ***(Ref: Job Card DGP.005.05)***

4.5.1 **Amendment to Annex 18 to Clarify States' Responsibilities with Respect to the Safe Transport of Dangerous (DGP-WG/25-IP/4)**

4.5.1.1 A summary of work undertaken by the DGP Working Group on Annex 18 (DGP-WG/Annex 18) since DGP-WG/24 (see paragraph 4.5.1 of the report) on clarifying State oversight responsibilities in Annex 18 was provided. A summary of feedback provided by the seventh meeting of the Safety Management Panel (SMP/7, 4 and 5 (virtual) and 10 to 13 (Montréal) December 2024), the eleventh meeting of FLTOPSP (FLTOPSP/11, 20 to 24 January 2025) and the twelfth meeting of the Air Navigation Commission's (ANC) 228th session was also provided. While significantly improved, there was agreement among these bodies and DGP-WG/Annex 18 that the amendment was not yet mature enough to be sent to States and international organizations for comment.

4.5.1.2 Significant revisions to the chapter on operator responsibilities were made to address initial feedback from flight operations experts within the Secretariat prior to formal coordination at FLTOPSP/11. These included a restructuring of the chapter on operator responsibilities to clearly distinguish between operators with and without a specific approval to transport goods, a new section on non-compliance, and the addition of new Standards to ensure each operator responsibility from the Technical Instructions was connected to a high-level Standard in the Annex, making the requirements more visible to States. There remained several gaps and inconsistencies between Annex 18 and Annex 6 that would be addressed through a DGP-FLTOPSP inter-panel working group established following FLTOPSP/11 with the aim of endorsement by the FLTOPSP and by the DGP at its thirtieth meeting.

4.5.1.3 The latest version of the proposed amendment to Annex 18 is presented in Appendix D to this working paper. DGP-WG/Annex 18 also developed consequential amendments to Annex 6 for the consideration of FLTOPSP, which are presented in Appendix E to this working paper.

4.6 Agenda Item 6: Dangerous goods provisions to support RPAS operations *(Ref: Job Card DGP.007.02)*

4.6.1 Use of Flamethrower RPAS to Provide Maintenance to Power Transmission Lines (DGP-WG/25-WP/7)

4.6.1.1 The working group discussed the emerging use of remotely piloted aircraft systems (RPAS) for safely managing hazards on power lines by deploying small amounts of flammable liquid to burn objects entangled in power transmission lines, noting that the Technical Instructions did not cover these operations. The working group was invited to share experiences in their States and to consider whether RPAS activities such as these should be excepted from the Technical Instructions through Part 1;1.1.5.1.

4.6.1.2 The working group recognized the need to safely facilitate these operations, while also expressing the need for caution when considering revisions to the exceptions. The need to expect the same level of safety required for commercial aviation was emphasized. One concern was that the aircraft used to perform these operations were not necessarily certified, and civil aviation authorities might not have authority over them. While sympathetic to the issues, there were limitations in addressing them through Annex 18 given that these were more likely to be domestic operations, and that uncertificated unmanned aircraft were beyond the scope of Annex 18. Some members thought that the exceptions in Part 1 should be more general to avoid the need for repeated updates with the emergence of new types of operations. One suggestion was to shift the focus from which dangerous goods were excepted to which ones were subject to the Technical Instructions, i.e. dangerous goods shipped as cargo or mail and those carried by passengers or crew. The Technical Instructions would then naturally not apply to the operations listed in Part1;1.1.5.1, and neither would the RPAS operations described in the working paper. Others cautioned against generalizing the list in Part 1;1.1.5.1 as this might make what was not subject to the Technical Instructions less clear.

4.6.1.3 There was no proposal to revise any provisions. The subject would be revisited once the DGP-WG/RPAS had delivered its recommendations.

4.6.2 **Dangerous Goods Provisions to Support Remotely Piloted Aircraft Systems (DGP-WG/25-WP/26), Dangerous Goods Provisions to Support Remotely Piloted Aircraft Systems – Guidance for the Carriage of Dangerous Goods Transported by Unmanned Aircraft Extracted from ICAO Advisory Circular AC 102 37 Associated with Part 102 of the ICAO Model UAS Regulations (DGP-WG/25-IP/1), and Dangerous Goods Provisions to Support Remotely Piloted Aircraft Systems: Principles on which the Development of Annex 6, Part IV was Based (DGP-WG/25-IP/2) and Dangerous Goods Provisions to Support Remotely Piloted Aircraft Systems – Feedback to DGP-WG/18, Draft Amendments to the Technical Instructions under Development and Draft Guidance Material (DGP.WG/25.IP/3)**

4.6.2.1 A detailed summary of work undertaken by the DGP Working Group on Remotely Piloted Aircraft Systems (DGP-WG/RPAS) to address the tasks on ANC job card DGP.007 was provided by its rapporteur. The objective of the work was to ensure Annex 18 and the Technical Instructions supported the Standards and Recommended Practices (SARPs) contained in Annex 6, Part IV – *International Operations of Remotely Piloted Aircraft Systems*. The group held a total of three face-to-face meetings and twenty-four virtual meetings since it was established after the twenty-eighth meeting of the DGP (DGP/28, 15 to 19 November 2021). Minutes of all meetings were available.

4.6.2.2 Draft amendments to the Technical Instructions and guidance material were developed and presented to DGP-WG/25. Key decisions about the direction, nature and scope of the work established by DGP-WG/RPAS before developing this material were discussed by DGP-WG/25. One was in relation to extending the provisions of the Technical Instructions to the specific category of operations. The Secretary clarified, based on feedback from technical experts within the ICAO Secretariat, that Annex 6, Part IV was applicable to the operation of RPAS certificated in accordance with Annex 8 — *Airworthiness of Aircraft* by operators authorized to conduct international RPAS operations. The Foreword to Annex 6, Part IV clearly stated that the provisions in the Annex did not apply to open and specific category operations. The scope of the Technical Instructions could therefore not be extended to the specific category, but guidance material for the specific category could be developed for inclusion in a separate document. Another was the use of the ICAO Model Unmanned Aircraft Systems (UAS) Regulations as a starting point for developing provisions related in the Technical Instructions. The Secretary clarified, based on feedback from technical experts within the ICAO Secretariat, that provisions in the Technical Instructions needed to be based on the provisions in Annex 6, Part IV and not on this document. Finally, whether the normal conditions of transport outlined in the Introductory Chapter to Part 4 would apply to remotely piloted aircraft (RPA) operations was discussed. DGP-WG/25 concluded that they would for aircraft certified in accordance with Annex 8 — *Airworthiness of Aircraft*, noting that the cargo compartment safety provisions of Annex 6, Part IV, Chapter 15, which required that the operator take the capabilities of the aircraft into account, would also apply. DGP-WG/25 emphasized the need for coordination with RPASP before recommending any final conclusions on this or any amendments proposed.

4.6.2.3 DGP-WG/25 was invited to provide feedback on the following general assumptions and decisions made by the group and on specific amendments developed for Annex 18 and the Technical Instructions.

General assumptions and decisions

4.6.2.4 **Amendments to Parts 2, 3, 4, 6 and 8 were not necessary**. DGP-WG/25 agreed that no changes were necessary to support RPAS operations in Parts 2 (Classification of dangerous goods), 3 (Dangerous goods list, special provisions and limited and excepted quantities), 4 (Packing instructions) or 6 (Packaging nomenclature, marking, requirements and tests). DGP-WG/RPAS had not considered any revisions to Part 8, given that passenger operations on RPA were not yet a reality, but DGP-WG/25 thought some consideration should be given since such operations were inevitable in the not-so-distant future. Whether or not dangerous goods would be permitted on such aircraft would be something to be considered.

4.6.2.5 **A new chapter on RPAS operations should be added to Part 7 as was done for helicopters**. Most saw a need to introduce a new chapter to address RPAS-specific needs, although there was some thought on whether this was necessary given that RPA certified in accordance with Annex 8 would be no different to manned aircraft certified in accordance with Annex 8. DGP-WG/25 concluded one should be developed with high-level provisions that would not have an adverse effect on safety should a State choose to use them domestically for unmanned aircraft other than RPA.

4.6.2.6 **The Technical Instructions should include provisions to enable the applicability of the Technical Instructions to RPAS other than certified RPAS and for these to be adopted by States in domestic operations**. This could not be done because it would extend the scope of the Technical Instructions beyond that of Annex 6, Part IV. However, guidance for transporting dangerous goods on such aircraft could be developed for inclusion in a separate document.

4.6.2.7 **The Technical Instructions should include provisions to enable applicability to unmanned aircraft other than for RPA**. Similar to 4.6.2.6, the Technical Instructions could only be applicable to the operation of RPAS certificated in accordance with Annex 8 by operators authorized to conduct international RPAS operations. However, guidance for transporting dangerous goods unmanned aircraft other than RPA could be developed for inclusion in a separate document.

Specific amendments developed for Annex 18 and the Technical Instructions

4.6.2.8 DGP-WG/RPAS met as a working group during DGP-WG/25 to discuss the comments raised during the plenary discussion. Final proposals would be presented to DGP/30 based on these discussions and virtual meetings that would be held. Members were invited to provide further feedback by 30 June 2025.

4.7 Agenda Item 7: Aviation security/dangerous goods coordination

4.7.1.1 The working group was briefed on coordination activities with the Aviation Security Panel (AVSECP) and the shared desire to engage and cooperate with each other on cargo, baggage and mail matters impacting both safety and security.

4.8 Agenda Item 8: Coordination with other Air Navigation Commission panels

4.8.1 Scope of Specific Approval to Transport Dangerous Goods Granted to the Air Operator (DGP-WG/25-WP/34)

4.8.1.1 The working group discussed the scope of the specific approval required by an operator to transport dangerous goods as it pertains to cargo, baggage, mail and dangerous goods not fully subject to the Technical Instructions. The dangerous goods chapters in Annex 6, Part I, Chapter 14, Part III — *International Operations — Helicopters*, Chapter 12 and IV, Chapter 14 distinguished between operators with and without specific approval to transport dangerous goods by listing high-level responsibilities for each in two different sections. The headings of each section referred to dangerous goods as cargo, implying that the specific approval did not apply to dangerous goods in baggage or mail. However, not all provisions within each section explicitly referred to cargo, and one of them referred to mail. Nevertheless, there was a view on the DGP that the specific approval only applied to dangerous goods as cargo, and guidance provided in Annex 6 and in the Supplement to the Technical Instructions did not contradict this view. The panel had discussed whether the dangerous goods field indicating whether an operator had a specific approval to transport dangerous goods on the operations specification template associated with the air operator certificate should be revised to specify "dangerous goods as cargo" to make this clear in Annex 6 (see paragraph 4.8.1 of the DGP-WG/24 Report). It had also discussed whether operators not authorized to transport dangerous goods could transport dangerous goods not required to be formally identified by way of marks, labels or documentation because of exceptions granted by the Technical Instructions

4.8.1.2 The discussion suggested a lack of consistency with what was included on the operations specification among the States with nominated DGP members and a view that further clarity was needed through Annex 6. Some of the inconsistencies identified and challenges raised during the discussion were:

a) some States listed limitations for baggage and mail on the operations specification, some just mail, and some neither;

b) some States did not permit transport of dangerous goods permitted in the mail unless the operator had a specific approval to transport dangerous goods as cargo;

c) some States did not direct limitations regarding baggage or mail at specific operators but rather to all operators through State variations;

d) handling mail was a source of confusion in several States, suggesting it wasn't adequately covered by the Annexes;

e) the carriage of dry ice in mail, as permitted through the exceptions when used as a refrigerant for infectious substances assigned to category B (UN 3373) should be subject to State oversight to ensure operators had measures in place to ensure the limits on the quantity of dry ice established for safe transport in their cargo compartments were not exceeded; and

f) further clarity was needed with respect to the carriage of dangerous goods on non-commercial aircraft, i.e. general aviation, as there was no mention of this in Annex 6, Part II.

4.8.1.3 Some members expressed support for revising the dangerous goods field on the operations specification template provided in Annex 6 to read "dangerous goods as cargo", and some supported this

along with two additional fields for baggage and mail. However, while agreeing that States needed to assess the operator's procedures for handling baggage and mail, some noted that requiring a specific approval to carry baggage and mail containing dangerous goods would place an onerous burden on the State and were not convinced there would be a safety benefit.

4.8.1.4 An inter-panel working group consisting of members of the DGP and FLTOPSP had been established to review the draft amendments proposed to Annex 18 having an impact on the operator, in association with existing SARPs in Annex 6. The report of the DGP-WG/25 discussion on the scope of the specific approval to carry dangerous goods would be provided to that group for consideration.

4.9 Agenda Item 9: Harmonization of *Guidance Material for the Dangerous Goods Panel (DGP) to Aid in the Preparation of the Technical Instructions and Supporting Documents* with revised dangerous goods provisions

4.9.1.1 DGP-WG/UN Harmonization would develop any necessary revisions to this document that might be necessary consequential to amendments expected to be agreed at DGP/30. The revisions would be presented in a working paper to DGP/30.

4.10 Agenda Item 10: Other business

4.11 Availability of the Technical Instructions to all Parties in the Transport Chain (DGP-WG/25-WP/29)

4.11.1 The working group discussed a request for online access to the Technical Instructions to ensure all parties in the dangerous goods transport chain could access them freely. It was suggested that this would help improve compliance by making it easy for shippers to access the necessary information. The issue had been discussed several times on the DGP and was raised at the 39th Session of the Assembly (see paragraphs 28.12 to 28.14 of the **Report of the Executive Committee to the Thirty-Ninth Session of the Assembly**). The 40th Session of the Assembly approved, based on an analyses by the Council following the 39th Session, a two-phased approach to public web access to ICAO publications in a freemium mode (see paragraph 52.2 of the **Report of the Administrative Commission to the Fortieth Session of the Assembly**). The first phase, which was already implemented, provided read-only access of documents containing SARPs. The second phase, which had not yet been implemented, would provide the same for the Technical Instructions.

4.11.2 The Secretary was asked to explain why the second phase had not been implemented and why the DGP had not been informed previously on that decision. She noted that such decisions were outside the scope of her bureau's or the Air Navigation Commission's remit. She provided the following feedback obtained from within the Secretariat:

> Implementation of Phase 2 was subject to the continued ability of the Organization to generate revenue to support its triennial budget commitment. The revenue generated from the sale of ICAO publications was an important contributor to the Organization's budget for programme activities in support of its strategic objectives. Without this revenue, important work of the Organization would not be possible. The dangerous goods publications were one of ICAO's most significant revenue generating products. The revenue was reinvested into the work of the Organization and directly supported the dangerous goods programme. Publishing the Technical Instructions on a public website would jeopardize this. The model reported to the Assembly for implementing Phase 2 had

not been implemented because the Organization had not yet found a way to offset the loss in revenue that would ensue if the publications were publicly available free of charge.

The Technical Instructions were readily accessible to a wide range of stakeholders, including Member States who benefited from full access at no cost. ICAO had targeted efforts to broaden accessibility, including partnerships with industry stakeholders.

4.11.3 Many were not aware of the free access provided to States. The Secretary would seek guidance on how to gain access and provide it to the panel via correspondence. However, the working group agreed that this did not negate the need for the Technical Instructions to be freely accessible to all. There was sympathy for the financial challenges, with some believing there may be ways to address them. The working group agreed to revisit the subject at DGP/30 when relevant experts from the Secretariat could be present.

4.12 **Farewells**

4.12.1 The working group bade farewell to two panel members and one long-standing adviser. Mr. Duane Pfund was leaving after participating on the panel for almost eighteen years, seven as the panel member nominated by the United States. He played a significant role assisting the panel in finding common ground during many discussions so that a consensus could be reached and, as rapporteur of the DGP Working Group on Electronic Storage Devices, a significant role in developing and achieving consensus on provisions aimed at mitigating risks associated with lithium batteries. Mr. Mario Ranito was leaving after participating on the panel for four years, two as the panel member nominated by the United Kingdom. He became a key contributor to the panel from his first meeting. He participated on most of the panel's working groups and helped the DGP Working Group on RPAS to significantly advance the panel's work on accommodating dangerous goods on remotely piloted aircraft in his role as rapporteur. Mr. Bheki Ngiba was leaving after participating on the panel as adviser to the panel member nominated by South Africa for more than four years. His insights, dedication and contributions helped shape the work of the panel both at its regular meetings and at its dedicated working group meetings.

4.12.2 The working group expressed its deep appreciation to the outgoing members and hopes for future collaboration. Their friendship and professional contributions would be missed.

4.13 **Closing**

4.13.1 Mr. Sanjay Kisan Brabane, Joint Director General at the Directorate General of Civil Aviation (DGCA), India, closed the meeting on 25 April 2025. The chair, on behalf of the working group, thanked the Joint Director and all the organizers and participants from DGCA for their warm hospitality and meaningful contributions to the panel's work.

4.13.2 The chair also extended deep appreciation to DGCA for facilitating the working group's visit to the training centres of IndiGo Airlines and Air India during the week. Participants were provided with a comprehensive overview of each airline's dangerous goods training programme, along with a guided tour of their respective facilities. The visit to these world-class training centres enabled fruitful exchanges of best practices, offered valuable insights into the implementation of training standards, and fostered a shared appreciation for the safety goals of the training programmes. The working group acknowledged and commended India's commitment to maintaining high standards of dangerous goods training and aviation safety.

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APPENDIX A

CONSOLIDATION OF AMENDMENTS TO THE TECHNICAL INSTRUCTIONS DEVELOPED AT DGP-WG/24 AND DGP-WG/25

Part 1

GENERAL

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Chapter 1

SCOPE AND APPLICABILITY

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1.1.5 General exceptions

Paragraph 4.3.4 of DGP-WG/24 report:

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 or to preserve blood or blood components for the purpose of transfusion or tissues or organs intended for use in transplantation 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;

3) lithium metal or lithium ion cells or batteries meet the provisions of 2;9.3 and spare lithium batteries are individually protected so as to prevent short circuits when not in use;

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

. . .

Paragraph 4.4.3 of DGP-WG/24 report:

i) data loggers and cargo-tracking devices with installed lithium or sodium ion batteries, attached to or placed in packages, overpacks or unit load devices, provided the following conditions are met:

1) the data loggers or cargo-tracking devices must be in use or intended for use during transport;

2) each cell or battery must meet the provisions of either Part 2;9.3 a), e), f) (if applicable) and g) or Part 2;9.4 a) and e);

3) for a lithium ion or sodium ion cell, the Watt-hour rating not exceeding 20 Wh;

4) for a lithium ion or sodium ion battery, the Watt-hour rating not exceeding 20 Wh;

5) for a lithium metal cell, the lithium content not exceeding 1 g;

6) for a lithium metal battery, the aggregate lithium content not exceeding 1 g;

7) the number of data loggers or cargo-tracking devices in or on any package or overpack must be no more than the number required to track or to collect data for the specific consignment;

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 5.5, 5.5.4.1 c) (see ST/SG/AC.10/52/Add.1)

8) the data loggers or cargo-tracking devices must be capable of withstanding the shocks and loadings normally encountered during transport and must be safe for use in the dangerous environments to which they may be exposed;

9) the devices must not be capable of generating a dangerous evolution of heat; and

10) the devices must meet defined standards for electromagnetic radiation to ensure that the operation of the device does not interfere with aircraft systems.

Note.— This exception does not apply where the data loggers or cargo-tracking devices are offered for transport as a consignment in accordance with Packing Instruction 967 ~~or~~, 970 or 978.

. . .

Chapter 3

GENERAL INFORMATION

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 1.2, 1.2.1 (see ST/SG/AC.10/52/Add.1)

. . .

Cylinder. A pressure receptacle of a water capacity not exceeding 150 litres with a test pressure volume product not exceeding 1.5 million bar litres.

. . .

Paragraph 4.2.2.7 of DGP-WG/25 report:

Explosive article. ~~An article containing one or more explosive substances.~~ For the definition, see 2;1.2.

Explosive substance. ~~A solid or liquid substance (or a mixture of substances) which is in itself capable by chemical reaction of producing gas at such a temperature and pressure and at such a speed as to cause damage to the surroundings. Included are pyrotechnic substances even when they do not evolve gases. A substance which is not itself an explosive but which can form an explosive atmosphere of gas, vapour or dust is not included.~~ For the definition, see 2;1.2.

. . .

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 1.2, 1.2.1 (see ST/SG/AC.10/52/Add.1)

Filling ratio. The ratio of the mass of gas to the mass of water at 15°C that would fill completely ~~a pressure receptacle~~ the means of containment fitted ready for use.

. . .

Paragraph 4.1.2.1.2.1 a) of DGP-WG/25 report:

GHS. The ~~tenth~~ eleventh revised edition of the *Globally Harmonized System of Classification and Labelling of Chemicals*, published by the United Nations as document ST/SG/AC.10/30/Rev.~~10~~11.

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 1.2, 1.2.1 (see ST/SG/AC.10/52/Add.1)

Large packaging. A packaging consisting of an outer packaging which contains articles or inner packagings and which:

a) is designed for mechanical handling; and

b) exceeds 400 kg net mass or 450 litres capacity but has ~~a volume~~ an internal volume of not more than 3 m³;

Note.— Large packagings are only permitted as provided for in Part 4, Introductory Note 12 and S-4;13 of the Supplement.

Large salvage packaging. (Not permitted for air transport.) A special packaging which:

a) is designed for mechanical handling; and

b) exceeds 400 kg net mass or 450 litres capacity but has ~~a volume~~ an internal volume of not more than 3 m³;

into which damaged, defective, leaking or non-conforming dangerous goods packages, or dangerous goods that have spilled or leaked are placed for purposes of transport for recovery or disposal.

. . .

Paragraph 4.1.2.1.2.1 a) of DGP-WG/25 report:

Manual of Tests and Criteria. The ~~eighth~~ ninth revised edition of the United Nations publication bearing this title (ST/SG/AC.10/11/Rev.8).

. . .

Model Regulations. The twenty-~~third~~ fourth revised edition of the United Nations publication entitled *Recommendations on the Transport of Dangerous Goods: Model Regulations* (ST/SG/AC.10/1/Rev.~~23~~24).

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 1.2, 1.2.1 (see ST/SG/AC.10/52/Add.1)

Net explosive mass (NEM). The total mass of the explosive substances, without the packagings, casings, etc. (net explosive quantity (NEQ)~~,~~ or net explosive contents (NEC)~~, or net explosive weight (NEW)~~ are often used to convey the same meaning).

. . .

Pressure volume product (pV-product). The value resulting from multiplying the (usable) water capacity of a containment with its relevant maximum pressure during filling and usage (e.g. test pressure or charging pressure) as referenced for the relevant kind of containment. It is expressed in bar litres.

. . .

Paragraph 4.2.2.7 of DGP-WG/25 report:

Pyrotechnic substance. ~~A mixture or compound designed to produce an effect by heat, light, sound, gas or smoke or a combination of these as the result of non-detonative, self-sustaining, exothermic, chemical reactions.~~ For the definition, see 2;1.2.

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 1.2, 1.2.1 (see ST/SG/AC.10/52/Add.1)

Salvage pressure receptacle. (Not permitted for air transport.) A pressure receptacle ~~with a water capacity not exceeding 3 000 litres~~ into which are placed damaged, defective, leaking or non-conforming pressure receptacle(s) having a total test pressure volume product not exceeding 1.5 million bar litres for the purpose of transport, such as for recovery or disposal.

. . .

Tube. (Not permitted for air transport.) A pressure receptacle of seamless or composite construction having a water capacity exceeding 150 litres but not more than 3 000 litres with a test pressure volume product not exceeding 1.5 million bar litres.

. . .

Paragraph 4.1.2.1.2.1 b) of DGP-WG/25 report:

~~***Usable water capacity.*** The water capacity of salvage pressure receptacles remaining after the installation of equipment into a salvage pressure receptacle, which is necessary for e.g. opening or drilling a stored pressure receptacle inside a closed salvage pressure receptacle. The usable water capacity may be lower than the water capacity originally approved and marked. It is expressed in litres;~~

. . .

Paragraph 4.2.2.6 of DGP-WG/25 report:

Chapter 4

DANGEROUS GOODS TRAINING

. . .

4.1 ESTABLISHMENT OF DANGEROUS GOODS TRAINING PROGRAMMES

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4.1.2 All operators must establish a dangerous goods training programme regardless of whether or not they ~~are approved~~ [have] a specific approval to transport dangerous goods as cargo.

. . .

Chapter 6

GENERAL PROVISIONS CONCERNING RADIOACTIVE MATERIAL

. . .

6.1 SCOPE AND APPLICATION

. . .

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 1.5, 1.5.1.3 (see ST/SG/AC.10/50/Add.1)

6.1.3 These Instructions apply to the transport of radioactive material by air, including transport that is incidental to the use of the radioactive material. Transport comprises all operations and conditions associated with and involved in the movement of radioactive material; these include the design, manufacture, maintenance and repair of packaging, and the preparation, consigning, loading, carriage including in-transit storage, shipment after storage, unloading and receipt at the final destination of the radioactive material and packages. A graded approach is applied to the performance standards in these Instructions that are characterized by three general severity levels:

a) routine conditions of transport (incident free);

b) normal conditions of transport (minor mishaps); and

c) accident conditions of transport.

. . .

Part 2

CLASSIFICATION OF DANGEROUS GOODS

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3. UN NUMBERS AND PROPER SHIPPING NAMES

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Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 2.0, 2.0.2.7 (see ST/SG/AC.10/52/Add.1)

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 or division.

. . .

4. PRECEDENCE OF HAZARD CHARACTERISTICS

. . .

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 2.0, 2.0.3.1 (see ST/SG/AC.10/52/Add.1)

g) substances of Division 6.1 with a Packing Group I inhalation toxicity. Except for substances or ~~preparations~~ mixtures meeting the criteria of Class 8 having an inhalation toxicity of dusts and mists (LC_{50}) in the range of Packing Group I, but toxicity through oral ingestion ~~or dermal contact only in the range~~ and dermal contact in the range of Packing Group III or less, which must be allocated to Class 8 (see note under 2;6.2.2.4.1 and 2;8.2.4);

. . .

5.4 Samples of energetic materials for testing purposes

Paragraph 4.1.2.1.3 of DGP-WG/25 report:

UN Model Regulations, Chapter 2.0, 2.0.4.3 (see ST/SG/AC.10/52/Add.1)

5.4.1 Samples of organic substances carrying functional groups listed in tables A6.1 and/or A6.3 in Appendix 6 (Screening Procedures) of the UN Manual of Tests and Criteria may be transported under UN 3224 (self-reactive solid type C) or UN 3223 (self-reactive liquid type C), as applicable, of Division 4.1 provided that:

a) the samples do not contain any:

i) known explosives;

ii) substances showing explosive effects in testing;

iii) compounds designed with the view of producing a practical explosive or pyrotechnic effect; or

iv) components consisting of synthetic precursors of intentional explosives;

b) for mixtures, complexes or salts of inorganic oxidizing substances of Division 5.1 with organic material(s), the concentration of the inorganic oxidizing substance is:

i) less than 15 per cent, by mass, if assigned to Packing Group I (high hazard) or II (medium hazard); or

ii) less than 30 per cent, by mass, if assigned to Packing Group III (low hazard);

c) available data do not allow a more precise classification;

d) the sample is not packed together with other goods;

e) the sample is packed in accordance with Packing Instruction 459; and

f) the proper shipping name is supplemented with the word “sample”.

5.4.2. Samples of organic substances carrying functional groups listed in tables A6.1 or A6.3 in appendix 6 of the UN *Manual of Tests and Criteria* may be assigned to one of the appropriate entries for self-reactive substances type C (UN 3223, UN 3224, UN 3233 or UN 3234, as applicable) of Division 4.1 and transported under the provisions of 2;4.2.3.2.6 for the transport in amounts of not more than 200 g per outer packaging provided that:

a) they fulfil the criteria of Part 2, Introductory chapter, paragraph 5.4.1 a) to c); and

b) their decomposition energy is:

i) less than 1 500 J/g for salts or complexes of organic compounds;

ii) less than 2 000 J/g for other organic substances;

iii) 1 500 J/g or more for salts or complexes of organic compounds, and in test C.1 the result is not “yes, rapidly” and in any one of test series F the result is not "not low"; or

iv) 2 000 J/g or more for other organic substances, and in test C.1 the result is not “yes, rapidly” and in any one of test series F the result is not “not low”.

The assessment in b) iii) and iv) may be based on a single test C.1 and one single test from test series F. If the criteria in b) are fulfilled, it can be assumed that the sample is not more dangerous than self-reactive substances type B. An appropriate method to determine temperature control requirements is described in section 20.3.4 of the UN *Manual of Tests and Criteria*. Samples not passing the criteria in b) iii) or iv) may be transported by an approval issued by the appropriate national authority of the State of Origin. The approval must be based on the available information and contain the classification and the relevant transport conditions. Alternatively, the sample may be dissolved or diluted with an inert compound to form a homogenous mixture in agreement with the criteria in b) i) or ii), as applicable.

5.4.3 A flow chart describing the classification of energetic samples is shown in Figure 2-1.

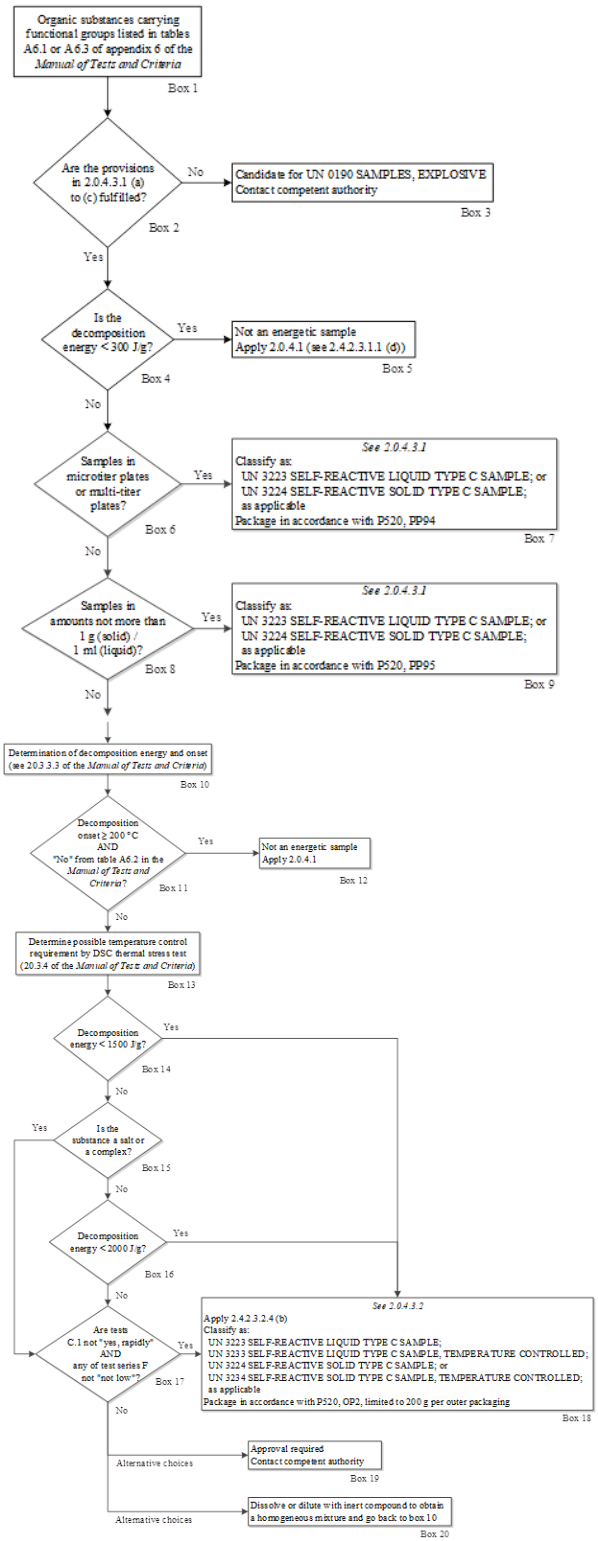

Figure 2-1. Classification of energetic samples

6. CLASSIFICATION OF ARTICLES AS ARTICLES CONTAINING DANGEROUS GOODS N.O.S.

. . .

Paragraphs 4.1.2.1 and 4.4.2 of DGP-WG/25 report:

UN Model Regulations, Chapter 2.0, 2.0.5.2 (see ST/SG/AC.10/52/Add.1)

6.2 Such articles may in addition contain cells or batteries. ~~Lithium cells and batteries~~ Lithium metal, lithium ion and sodium ion cells and batteries that are integral to the article must be of a type proven to meet the testing requirements of the UN Manual of Tests and Criteria, Part III, subsection 38.3. For articles containing pre-production prototype ~~lithium cells or batteries~~ lithium metal, lithium ion or sodium ion cells or batteries transported for testing, or for articles containing ~~lithium cells or batteries~~ lithium metal, lithium ion or sodium ion cells or batteries manufactured in annual production runs of not more than 100 cells or batteries, the requirements of Special Provision A88 apply.

. . .

Chapter 1

CLASS 1 – EXPLOSIVES

. . .

1.1 DEFINITIONS AND GENERAL PROVISIONS

Class 1 comprises:

. . .

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 2.1.1.1 (see ST/SG/AC.10/52/Add.1)

b) explosive articles, except those that are too dangerous to transport or devices containing explosive substances in such quantity or of such a character that their inadvertent or accidental ignition or initiation during transport will not cause any effect external to the device either by projection, fire, smoke, heat or loud noise (see 1.5.2); and

. . .

1.2 DEFINITIONS

For the purposes of these Instructions, the following definitions apply:

a) ***Explosive substance*** is a solid or liquid substance (or a mixture of substances) which is in itself capable, by chemical reaction, of producing gas at such a temperature and pressure and at such a speed as to cause damage to the surroundings. Pyrotechnic substances are included even when they do not evolve gases.

b) ***Pyrotechnic substance*** is an explosive substance designed to produce an effect by heat, light, sound, gas or smoke or a combination of these as the result of non-detonative, self-sustaining, exothermic, chemical reactions.

c) ***Explosive article*** is an article containing one or more explosive substances.

d) ***Phlegmatized*** means that a substance (or "phlegmatizer") has been added to an explosive to enhance its safety in handling and transport. The phlegmatizer renders the explosive insensitive, or less sensitive, to the following actions: heat, shock, impact, percussion or friction. Typical phlegmatizing agents include, but are not limited to: paper, wax, water, polymers (such as chlorofluoropolymers), alcohol and oils (such as petroleum jelly and paraffin).

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 2.1.1.3 (see ST/SG/AC.10/52/Add.1)

e) ***Explosive or pyrotechnic effect*** ~~means, in the context of 1.1 c),~~ is an effect produced by self-sustaining exothermic chemical reactions including shock, blast, fragmentation, projection, heat, light, sound, gas and smoke.

Note.— Explanations for a number of other terms used in connection with explosives can be found in Attachment 2 to these Instructions.

Chapter 2

CLASS 2 – GASES

. . .

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 3.3, SP 63 (see ST/SG/AC.10/52/Add.1)

2.5 AEROSOLS

2.5.1 For aerosols, the division of Class 2 and the subsidiary hazards depend on the nature of the contents of the aerosol dispenser. The following provisions must apply:

a) Division 2.1 applies if the contents include 85 per cent by mass or more flammable components and the chemical heat of combustion is 30 kJ/g or more;

b) Division 2.2 applies if the content contains 1 per cent by mass or less flammable components and the heat of combustion is less than 20 kJ/g;

c) otherwise the product must be classified as tested by the tests described in the UN Manual of Tests and Criteria, Part III, section 31. Extremely flammable and flammable aerosols must be classified in Division 2.1; non-flammable in Division 2.2;

d) gases of Division 2.3 must not be used as a propellant in an aerosol dispenser;

e) ~~where the contents other than the propellant of aerosol dispensers to be ejected are classified as Division 6.1, Packing Groups II or III or Class 8, Packing Groups II or III, the aerosol must have a subsidiary hazard of Division 6.1 or Class 8;~~the aerosol must have a subsidiary hazard of Division 6.1 or Class 8 where the contents, other than the propellant of aerosol dispensers, are classified as:

   i) Division 6.1, Packing Groups II or III; or

   ii) Class 8, Packing Groups II or III.

   The aerosol must be prohibited from transport where the contents are classified as Division 6.1, Packing Group I or Class 8, Packing Group I;

f) ~~aerosols with contents meeting the criteria of Packing Group I for toxicity or corrosivity are forbidden from transport.~~the aerosol must be prohibited from transport where the contents additionally meet the classification criteria of:

   i) Class 1 – Explosives;

   ii) liquid desensitized explosives of Class 3;

   iii) self-reactive substances and solid desensitized explosives of Division 4.1;

   iv) Division 4.2 – Substances liable to spontaneous combustion;

   v) Division 4.3 – Substances which, in contact with water, emit flammable gases;

   vi) Division 5.2 – Organic peroxides;

   vii) Division 6.2 – Infectious substances; or

   viii) Class 7 – Radioactive material.

2.5.2 Flammable components are flammable liquids, flammable solids or flammable gases and gas mixtures as defined in Notes 1 to 3 of subsections 31.1.3 of Part III of the UN *Manual of Tests and Criteria*. ~~This designation does not cover pyrophoric, self-heating or water-reactive substances.~~ The chemical heats of combustion must be determined either by ~~one of the following~~ reference to published scientific literature, through calculation or by using suitable calorimetric test methods~~:~~ (e.g. ASTM D 240~~, ISO/FDIS 13943: 1999 (E/F) 86.1 to 86.3 or~~ and NFPA 30B).

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Chapter 4

CLASS 4 – FLAMMABLE SOLIDS; SUBSTANCES LIABLE TO SPONTANEOUS COMBUSTION; SUBSTANCES WHICH, IN CONTACT WITH WATER, EMIT FLAMMABLE GASES

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4.3 SUBSTANCES LIABLE TO SPONTANEOUS COMBUSTION (DIVISION 4.2)

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4.3.2 Classification in Division 4.2

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Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 2.4.3.2.3.1 (see ST/SG/AC.10/52/Add.1)

4.3.2.3.1 A substance must be classified as a self-heating substance of Division 4.2 if, in tests performed in accordance with the test method given in the current edition of the UN Manual of Tests and Criteria, Part III, subsection 33.3.1.6:

a) a positive result is obtained using a 25 mm sample cube at 140°C;

b) a positive result is obtained in a test using a 100 mm sample cube at 140°C and a negative result is obtained in a test using a 100 mm sample cube at 120°C and the substance is to be transported in packages with ~~a volume~~ an internal volume of more than 3 m^3;

c) a positive result is obtained in a test using a 100 mm sample cube at 140°C and a negative result is obtained in a test using a 100 mm sample cube at 100°C and the substance is to be transported in packages with ~~a volume~~ an internal volume of more than 450 L;

. . .

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 2.4.3.2.3.2 (see ST/SG/AC.10/52/Add.1)

4.3.2.3.2 A substance must not be classified in Division 4.2 if:

a) a negative result is obtained in a test using a 100 mm sample cube at 140°C;

b) a positive result is obtained in a test using a 100 mm sample cube at 140°C and a negative result is obtained in a test using a 25 mm sample cube at 140°C, a negative result is obtained in a test using a 100 mm sample cube at 120°C and the substance is to be transported in packages with ~~a volume~~ an internal volume of not more than 3 cubic metres; or

c) a positive result is obtained in a test using a 100 mm sample cube at 140°C and a negative result is obtained in a test using a 25 mm sample cube at 140°C, a negative result is obtained in a test using a 100 mm sample cube at 100°C and the substance is to be transported in packages with ~~a volume~~ an internal volume of not more than 450 L.

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4.3.3 Assignment of packing groups

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Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 2.4.3.3.3 (see ST/SG/AC.10/52/Add.1)

4.3.3.3 Packing Group III must be assigned to self-heating substances if:

a) a positive result is obtained in a test using a 100 mm sample cube at 140°C and a negative result is obtained in a test using a 25 mm sample cube at 140°C and the substance is to be transported in packages with ~~a volume~~ an internal volume of more than 3 cubic metres;

b) a positive result is obtained in a test using a 100 mm sample cube at 140°C and a negative result is obtained in a test using a 25 mm sample cube at 140°C, a positive result is obtained in a test using a 100 mm sample cube at 120°C and the substance is to be transported in packages with ~~a volume~~ an internal volume of more than 450 L; or

c) a positive result is obtained in a test using a 100 mm sample cube at 140°C and a negative result is obtained in a test using a 25 mm sample cube at 140°C and a positive result is obtained in a test using a 100 mm sample cube at 100°C.

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Chapter 5

CLASS 5 – OXIDIZING SUBSTANCES; ORGANIC PEROXIDES

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5.3.4 Desensitization of organic peroxides

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Table 2-7. List of currently assigned organic peroxides in packagings

Note.— Peroxides to be transported must fulfil the classification and the control and emergency temperatures (derived from the self-accelerating decomposition temperature (SADT)) as listed.

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 2.5.3.2.4 (see ST/SG/AC.10/52/Add.1)

Organic peroxide	*Concentration (per cent)*	*Diluent type A (per cent)*	*Diluent type B (per cent) (Note 1)*	*Inert solid (per cent)*	*Water (per cent)*	*Control tempera-ture (°C)*	*Emergency tempera-ture (°C)*	*UN generic entry*	*Sub-sidiary hazards and notes*
~~({3r-(3r,5as,6s,8as,9r,10r,12s,12ar**)}-Decahydro-10-methoxy-3,6,9-trimethyl-3,12-epoxy-12h-pyrano[4,3-j]-1,2-benzodioxepin)~~	~~≤100~~							~~3106~~	
. . .									
tert-Amyl peroxypivalate	≤77		≥23			+10	+15	3113	
tert-Amyl peroxypivalate	≤ 72	≥ 28				+10	+15	3115	
tert-Amylperoxy-3,5,5-trimethylhexanoate	≤100							3105	
Arteether (including stereoisomers)	≤ 100							3106	
Artemether (including stereoisomers)	≤ 100							3106	
Artemisinin	≤ 100							3106	

Organic peroxide	*Concentration (per cent)*	*Diluent type A (per cent)*	*Diluent type B (per cent) (Note 1)*	*Inert solid (per cent)*	*Water (per cent)*	*Control tempera-ture (°C)*	*Emergency tempera-ture (°C)*	*UN generic entry*	*Sub-sidiar y hazards and notes*
Artesunate (including stereoisomers)	≤ 100							3106	
. . .									
2,2-Dihydroperoxypropane	≤27			≥73				FORBIDDEN	
Dihydroartemisinin (including stereoisomers)	≤ 100							3106	
. . .									
1-(2-Ethylhexanoylperoxy)-1,3-dimethylbutyl peroxypivalate	≤52	≥45	≥10			-20	-10	3115	
1,2,4,5,7,8-Hexoxonane, 3,6,9-trimethyl-3,6,9-tris (ethyl and propyl) derivatives	≤ 41	≥ 59						3105	35
tert-Hexyl Peroxyneodecanoate	≤71	≥29				0	+10	3115	

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Notes:

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34. Sum of diluent type A and water ≥55 per cent and in addition methyl ethyl ketone.
35. Available oxygen ≤ 7.3 %

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Chapter 6

CLASS 6 – TOXIC AND INFECTIOUS SUBSTANCES

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6.2 DIVISION 6.1 – TOXIC SUBSTANCES

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6.2.2 Assignment of packing groups

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Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 2.6.2.2.4.1 (see ST/SG/AC.10/52/Add.1)

6.2.2.4.1 The grouping criteria for the oral and dermal routes as well as for inhalation of dusts and mists are as shown in Table 2-8.

Note.— Substances or mixtures meeting the criteria of Class 8 and with an inhalation toxicity of dusts and mists (LC_{50}) leading to Packing Group I are only accepted for an allocation to Division 6.1 if the toxicity through oral ingestion or dermal contact is at least in the range of Packing Group I or II. Otherwise, an allocation to Class 8 is made when appropriate (see Part 2, Introductory chapter, paragraph 4 g) and 8.2.4).

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6.3.2 Classification of infectious substances

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Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 2.6.3.2.2 (see ST/SG/AC.10/52/Add.1)

6.3.2.2 Infectious substances are divided into ~~the following categories~~ Categories A and B~~:~~.

6.3.2.2.1 *Category A~~:~~*

6.3.2.2.1.1 An infectious substance which is transported in a form that, when exposure to it occurs, is capable of causing permanent disability, life-threatening or fatal disease in otherwise healthy humans or animals is assigned to Category A. Indicative examples of substances that meet these criteria are given in Table 2-10.

Note.— An exposure occurs when an infectious substance is released outside of the protective packaging resulting in physical contact with humans or animals.

~~a)~~ 6.3.2.2.1.2 Infectious substances meeting these criteria which cause disease in humans or in both humans and animals must be assigned to UN 2814 **– Infectious substance, affecting humans**. Infectious substances which cause disease only in animals must be assigned to UN 2900 **– Infectious substance, affecting animals**.

~~b)~~ 6.3.2.2.1.3 Assignments to UN 2814 or UN 2900 must be based on the known medical history and symptoms of the source human or animal, endemic local conditions, or professional judgement concerning individual circumstances of the source human or animal.

~~*Note 1.— The proper shipping name for UN 2814 is **Infectious substance, affecting humans**. The proper shipping name for UN 2900 is **Infectious substance, affecting animals** only.*~~

~~Note 2.—~~ 6.3.2.2.1.4 Table 2-10 is not exhaustive. Infectious substances, including new or emerging pathogens, which do not appear in Table 2-10 but which meet the same criteria must be assigned to Category A. In addition, if there is doubt as to whether or not a substance meets the criteria it must be included in Category A.

~~*Note 3.— In Table 2-10, the micro-organisms written in italics are bacteria or fungi.*~~ To address emerging health situations, more up-to-date information on the applicable categories can be obtained from human and animal health inter-governmental organizations and national authorities.

6.3.2.2.2 *Category B~~:~~*

An infectious substance which does not meet the criteria for inclusion in Category A is assigned to Category B. Infectious substances in Category B must be assigned to UN 3373 **– *Biological substance, Category B***.

~~*Note.— The proper shipping name of UN 3373 is **Biological substance, Category B**.*~~

. . .

Table 2-10. Indicative examples of infectious substances included in Category A in any form unless otherwise indicated
~~(6.3.2.2.1 a))~~

UN Number and Proper Shipping Name	**Micro-organism (bacteria and fungi are written in italics)**
UN 2900 Infectious substances affecting animals ~~only~~	

. . .

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 2.6.3.2.3.9 (see ST/SG/AC.10/52/Add.1)

6.3.2.3.9 Except for:

a) medical waste (UN 3291 and UN 3549);

b) medical devices or equipment contaminated with or containing infectious substances in Category A (UN 2814 or UN 2900); and

c) medical devices or equipment contaminated with or containing other dangerous goods that meet the definition of another hazard class, other than lithium cells or batteries or sodium ion cells or batteries contained in or packed with equipment (UN 3091, UN 3481 and UN 3552).

medical devices or equipment potentially contaminated with or containing infectious substances which are being transported for disinfection, cleaning, sterilization, repair, or equipment evaluation are not subject to the provisions of these Instructions if packed in packagings designed and constructed in such a way that, under normal conditions of transport, they cannot break, be punctured or leak their contents. Packagings must be designed to meet the construction requirements listed in 6;3.

6.3.2.3.9.1 Medical devices or equipment must be drained of free liquid to the extent practicable. They must be packed in a strong rigid outer packaging fitted with sufficient cushioning material to prevent movement within the outer packaging. These packagings must meet the general packing requirements of 4;1.1.1, 4;1.1.3.1 and 4;1.1.4 (with the exception of 4;1.1.4.1). If the outer packaging is not liquid tight and the medical devices or equipment are contaminated with or contain liquid infectious substances, a means of containing the liquid in the event of leakage must be provided in the form of a leakproof liner, plastic bag or other equally effective means of containment. These packagings must be capable of retaining the medical devices and equipment when dropped from a height of 1.2 m.

Note.— A packaging's capability of retaining medical devices or equipment when dropped from a height of 1.2 m should be determined through testing a sample package as prepared for transport or through alternative means such as non-destructive testing and engineering analysis, testing with an article of similar mass and size, or other equivalent means.

6.3.2.3.9.2 Packages must be marked "Used medical device" or "Used medical equipment". When an overpack is used, it must be marked with the words "Used medical device" or "Used medical equipment" unless the markings are visible.

6.3.2.3.9.3 When used medical devices contain or are packed with lithium cells or batteries or sodium ion cells or batteries, the relevant entry of the Dangerous Goods List (Table 3-1) must be used and all applicable provisions of these Instructions must apply.

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Chapter 8

CLASS 8 – CORROSIVE SUBSTANCES

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8.2 GENERAL CLASSIFICATION PROVISIONS

. . .

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 2.8.2.4 (see ST/SG/AC.10/52/Add.1)

8.2.4 ~~A s~~Substances or mixtures meeting the criteria of Class 8 having an inhalation toxicity of dusts and mists (LC_{50}) in the range of Packing Group I, but toxicity through oral ingestion ~~or dermal contact only in the range~~ and dermal contact in the range of Packing Group III or less, must be allocated to Class 8 (see Part 2, Introductory chapter, paragraph 4 g) and ~~N~~note under 6.2.2.4.1).

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Chapter 9

CLASS 9 – MISCELLANEOUS DANGEROUS SUBSTANCES AND ARTICLES, INCLUDING ENVIRONMENTALLY HAZARDOUS SUBSTANCES

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Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 2.9.2 (see ST/SG/AC.10/52/Add.1)

Table 2-16. Substances and articles of Class 9

UN number	*Name*	*Notes*

. . .

3536	**Lithium ion batteries installed in cargo transport unit**
3563	**Lithium metal batteries installed in cargo transport unit**

. . .

3552	**Sodium ion batteries contained in equipment** with organic electrolyte
3552	**Sodium ion batteries packed with equipment** with organic electrolyte
3564	**Sodium ion batteries installed in cargo transport unit**

. . .

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 2.9.4 (see ST/SG/AC.10/52/Add.1)

9.3 LITHIUM BATTERIES

Cells and batteries, cells and batteries ~~contained in equipment~~ contained in articles, engines, equipment or vehicles or cells and batteries packed with equipment, containing lithium in any form ~~must be assigned to UN Nos. 3090, 3091, 3480 or 3481, as appropriate. They~~ may be transported under ~~these entries~~ the appropriate entry provided:

a) each cell or battery is of the type proved to meet the requirements of each test of the UN Manual of Tests and Criteria, Part III, subsection 38.3;

Cells and batteries manufactured according to a type meeting the requirements of subsection 38.3 of the UN Manual of Tests and Criteria, Revision 3, Amendment 1 or any subsequent revision and amendment applicable at the date of the type testing may continue to be transported, unless otherwise provided in these Instructions.

Cell and battery types only meeting the requirements of the UN Manual of Tests and Criteria, Revision 3, are no longer valid. However, cells and batteries manufactured in conformity with such types before 1 July 2003 may continue to be transported if all other applicable requirements are fulfilled.

Note 1.— Batteries must be of a type proved to meet the testing requirements of the UN Manual of Tests and Criteria, Part III, subsection 38.3, irrespective of whether the cells of which they are composed are of a tested type.

Note 2.— A battery with a change resulting from treatment, such as repairing, refurbishing, or remanufacturing in accordance with 38.3.2.2 (c) of the Manual of Tests and Criteria may be considered to differ from a tested type.

b) each cell and battery incorporates a safety venting device or is designed to preclude a violent rupture under conditions normally incident to transport;

c) each cell and battery is equipped with an effective means of preventing external short circuits;

d) each battery containing cells or a series of cells connected in parallel is equipped with effective means as necessary to prevent dangerous reverse current flow (such as diodes, fuses, etc.);

e) cells and batteries are manufactured under a quality management programme that includes:

1) a description of the organizational structure and responsibilities of personnel with regard to design and product quality;

2) the relevant inspection and test, quality control, quality assurance, and process operation instructions that will be used;

3) process controls that should include relevant activities to prevent and detect internal short circuit failure during manufacture of cells;

4) quality records, such as inspection reports, test data, calibration data and certificates. Test data must be kept and made available to the appropriate national authority upon request;

5) management reviews to ensure the effective operation of the quality management programme;

6) a process for control of documents and their revision;

7) a means for control of cells or batteries that are not conforming to the type tested in accordance with Part III, subsection 38.3 of the UN *Manual of Tests and Criteria*;

8) training programmes and qualification procedures for relevant personnel;

9) procedures to ensure that there is no damage to the final product;

Note.— In-house quality management programmes may be accepted. Third-party certification is not required, but the procedures listed in 1) to 9) above must be properly recorded and traceable. A copy of the quality management programme must be made available to the appropriate national authority upon request.

f) lithium batteries, containing both primary lithium metal cells and rechargeable lithium ion cells, that are not designed to be externally charged (see Special Provision A213), meet the following conditions:

i) the rechargeable lithium ion cells can only be charged from the primary lithium metal cells;

ii) overcharge of the rechargeable lithium ion cells is precluded by design;

iii) the battery has been tested as a lithium primary battery;

iv) component cells of the battery are of a type proved to meet the respective testing requirements of the UN *Manual of Tests and Criteria*, Part III, subsection 38.3; and

g) except for button cells installed in equipment (including circuit boards), manufacturers and subsequent distributors of cells or batteries manufactured after 30 June 2003 make available the test summary as specified in the UN Manual of Tests and Criteria, Part III, subsection 38.3, paragraph 38.3.5.

Note.— The term "make available" means that manufacturers and subsequent distributors ensure that the test summary is accessible so that the shipper or other persons in the supply chain can confirm compliance.

h) hybrid batteries, containing both lithium ion cells and sodium ion cells (see Special Provision A235), must meet the following conditions:

i) the lithium ion cells and sodium ion cells are electrically connected;

ii) the battery has been tested as a lithium ion battery in accordance with 9.3 a);

iii) each component lithium ion and sodium ion cell of the battery is of a type proved to meet the respective testing requirements of the UN *Manual of Tests and Criteria*, part III, sub-section 38.3.

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 2.9.5 (see ST/SG/AC.10/52/Add.1)

9.4 SODIUM ION BATTERIES

Cells and batteries, cells and batteries ~~contained in equipment~~ contained in articles, engines, equipment or vehicles or cells and batteries packed with equipment containing sodium ion, which are a rechargeable electrochemical system where the positive and negative electrode are both intercalation or insertion compounds, constructed with no metallic sodium (or sodium alloy) in either electrode and with an organic non-aqueous compound as electrolyte~~, must be assigned to UN Nos. 3551 or 3552, as appropriate.~~

~~Note.— Intercalated sodium exists in an ionic or quasi-atomic form in the lattice of the electrode material.~~

~~They~~ may be transported under ~~these entries~~ the appropriate entry provided:

a) each cell or battery is of the type proved to meet the requirements of applicable tests of the UN *Manual of Tests and Criteria*, Part III, subsection 38.3;

Note.— Batteries must be of a type proved to meet the testing requirements of the UN Manual of Tests and Criteria*, Part III, subsection 38.3, irrespective of whether the cells of which they are composed are of a tested type.*

b) each cell and battery incorporates a safety venting device or is designed to preclude a violent rupture under conditions normally encountered during transport;

c) each cell and battery is equipped with an effective means of preventing external short circuits;

d) each battery containing cells or a series of cells connected in parallel is equipped with effective means as necessary to prevent dangerous reverse current flow (such as diodes, fuses, etc.);

e) cells and batteries are manufactured under a quality management programme as prescribed under 9.3 e) 1) to 9);

f) manufacturers and subsequent distributors of cells or batteries make available the test summary as specified in the UN *Manual of Tests and Criteria*, Part III, subsection 38.3, paragraph 38.3.5.

Note.— The term "make available" means that manufacturers and subsequent distributors ensure that the test summary is accessible so that the shipper or other persons in the supply chain can confirm compliance.

Editorial Note.— The following are editorial amendments necessary because of the edition of new Figure 2-1.

Chapter 6

CLASS 6 – TOXIC AND INFECTIOUS SUBSTANCES

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6.2.2 Assignment of packing groups

6.2.2.4.4 In Figure ~~2-1~~ 2-2, the criteria according to 6.2.2.4.3 are expressed in graphical form, as an aid to easy classification. However, because of approximations inherent in the use of graphs, substances on or near packing group borderlines must be checked using numerical criteria.

. . .

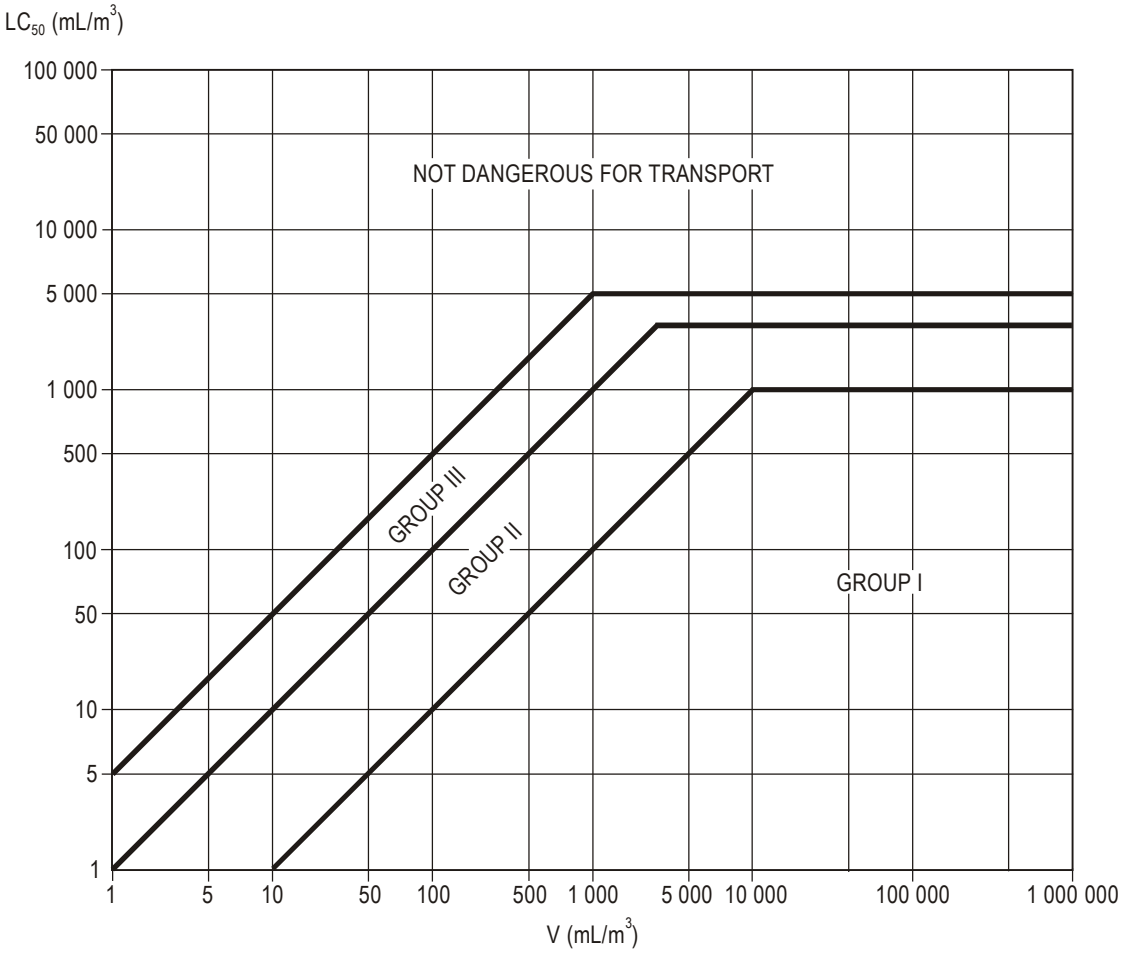

Figure ~~2-1~~ 2-2. Criteria for inhalation of vapours

Chapter 8

CLASS 8 – CORROSIVE SUBSTANCES

. . .

8.4 ALTERNATIVE PACKING GROUP ASSIGNMENT METHODS FOR MIXTURES: STEP-WISE APPROACH

8.4.1 General provisions

For mixtures, it is necessary to obtain or derive information that allows the criteria to be applied to the mixture for the purpose of classification and assignment of packing groups. The approach to classification and assignment of packing groups is tiered, and is dependent upon the amount of information available for the mixture itself, for similar mixtures and/or for its ingredients. The flow chart of Figure ~~2-2~~ 2-3 outlines the process to be followed.

. . .

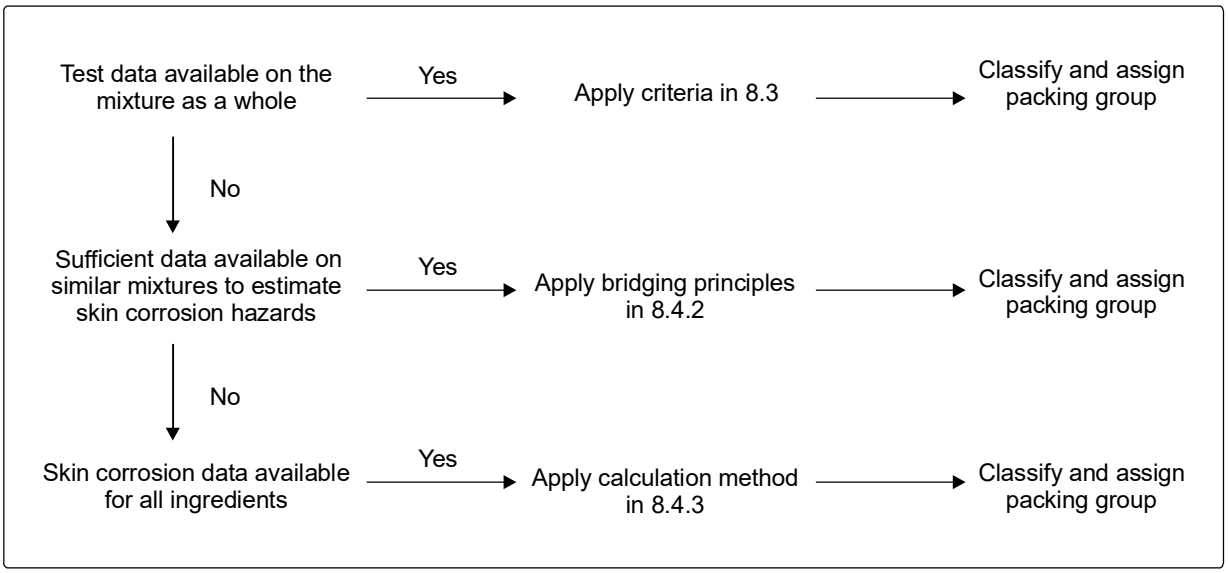

Figure ~~2-2~~2-3. Step-wise approach to classify and assign packing group of corrosive mixtures

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8.4.3 Calculation method based on the classification of the substances

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8.4.3.3 To determine whether a mixture containing corrosive substances must be considered a corrosive mixture and to assign a packing group, the calculation method in the flow chart in Figure ~~2-3~~ 2-4 must be applied.

8.4.3.4 When a specific concentration limit (SCL) is assigned to a substance following its entry in Table 3-1 or in a special provision, this limit must be used instead of the generic concentration limits (GCL). This appears where 1 per cent is used in the first step for the assessment of the Packing Group I substances, and where 5 per cent is used for the other steps respectively in Figure ~~2-3~~ 2-4.

8.4.3.5 For this purpose, the summation formula for each step of the calculation method must be adapted. This means that, where applicable, the generic concentration limit must be substituted by the specific concentration limit assigned to the substance(s) (SCLi), and the adapted formula is a weighted average of the different concentration limits assigned to the different substances in the mixture:

$$(PGx\_1)/GCL+(PGx\_2)/〖SCL〗\_2 +\cdots+ (PGx\_i)/〖SCL〗\_i \geq 1$$

Where:

PGxi = concentration of substance 1, 2 … i in the mixture, assigned to Packing Group x (I, II or III)

GCL = generic concentration limit

SCLi = specific concentration limit assigned to substance i

The criterion for a packing group is fulfilled when the result of the calculation is ≥1. The generic concentration limits to be used for the evaluation in each step of the calculation method are those found in Figure ~~2-3~~ 2-4.

. . .

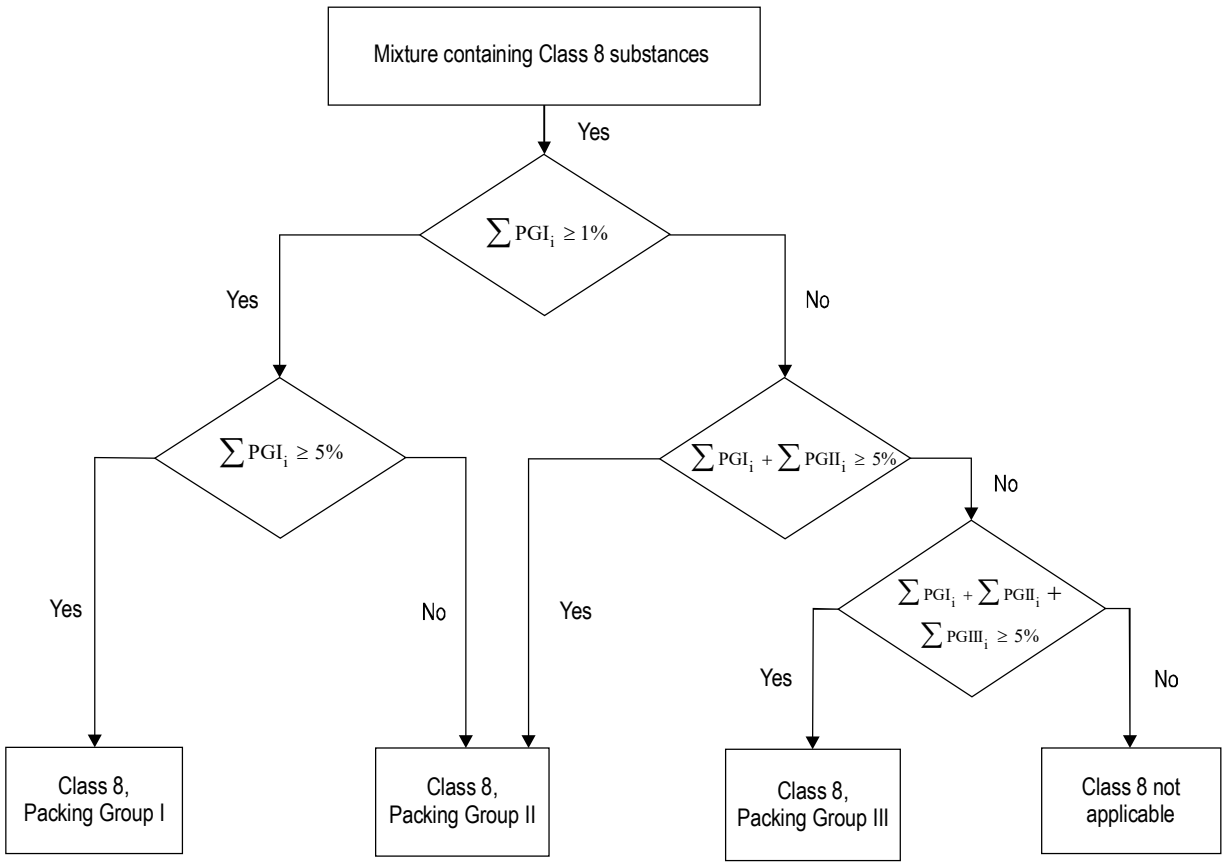

Figure ~~2-3~~2-4. Calculation method

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Part 3

DANGEROUS GOODS LIST, SPECIAL PROVISIONS AND LIMITED AND EXCEPTED QUANTITIES

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Chapter 2

ARRANGEMENT OF THE DANGEROUS GOODS LIST (TABLE 3-1)

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Table 3-1. Dangerous Goods List

Name	*UN No.*	*Class or division*	*Sub-si diary hazard*	*Labels*	*State varia-tions*	*Special provi-sions*	*UN packing group*	*Excepted quantity*	*Passenger and cargo aircraft*		*Cargo aircraft only*	
									Packing instruction	*Max. net quantity per package*	*Packing instruction*	*Max. net quantity per package*
1	*2*	*3*	*4*		*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*
Paragraph 4.1.2.1.4.1 c) of DGP-WG/25 report:												
Detonators, electric for blasting†	0030	1.1B				~~A226~~			FORBIDDEN		FORBIDDEN	
Detonators, electric for blasting†	0255	1.4B		Explosive 1.4		~~A226~~		E0	FORBIDDEN		131	75 kg
Detonators, electric for blasting†	0456	1.4S		Explosive 1.4		A165 ~~A226~~		E0	131	25 kg	131	100 kg
Detonators, electronic programmable for blasting†	0511	1.1B				~~A226~~		E0	FORBIDDEN		FORBIDDEN	
Detonators, electronic programmable for blasting†	0512	1.4B		Explosive 1.4		~~A226~~		E0	FORBIDDEN		131	75 kg
Detonators, electronic programmable for blasting†	0513	1.4S		Explosive 1.4		A165 ~~A226~~		E0	131	25 kg	131	100 kg
Paragraph 4.1.2.1 of DGP-WG/25 report:												
UN Model Regulations, Chapter 3.2, dangerous goods list (see ST/SG/AC.10/52/Add.1)												
Ethylene oxide	1040	2.3	2.1 8		AU 1 CA 7 IR 3 NL 1 US 3 US 4	A2 A131			FORBIDDEN		FORBIDDEN	

Name	UN No.	Class or division	Sub-si diary hazard	Labels	State varia-tions	Special provi-sions	UN packing group	Excepted quantity	Passenger and cargo aircraft		Cargo aircraft only	
									Packing instruction	Max. net quantity per package	Packing instruction	Max. net quantity per package
1	2	3	4		6	7	8	9	10	11	12	13
Ethylene oxide with nitrogen up to a total pressure of 1 MPa at 50ºC	1040	2.3	2.1 8		AU 1 CA 7 IR 3 NL 1 US 3 US 4	A2			FORBIDDEN		FORBIDDEN	
Ethylene oxide and carbon dioxide mixture with more than 9% but not more than 87% ethylene oxide	1041	2.1	8	Gas flammable & Corrosive	AU 1 CA 7 IR 3 NL 1 US 3	A1		E0	FORBIDDEN		200	25 kg
Ethylene oxide and carbon dioxide mixture, with more than 87% ethylene oxide	3300	2.3	2.1 8		AU 1 CA 7 IR 3 NL 1 US 3 US 4	A2			FORBIDDEN		FORBIDDEN	
Petroleum gases, liquefied	1075	2.1		Gas flammable	AU 1 CA 7 IR 3 NL 1 US 3	A1 A237		E0	FORBIDDEN		200	150 kg
Hydrocarbon gas mixture, liquefied, n.o.s.*	1965	2.1		Gas flammable	AU 1 CA 7 IR 3 NL 1 US 3	A1 A237		E0	FORBIDDEN		200	150 kg
Ammonium hydrogendifluoride, solid	1727	8	6.1	Corrosive & Toxic	US 4		II	E2	859 Y844	15 kg 5 kg	863	50 kg
Chlorophenols, toxic, solid, n.o.s.*	2020	6.1		Toxic	US 4	A25	III	E1	670 Y645	100 kg 10 kg	677	200 kg
Chlorophenols, toxic, liquid, n.o.s.*	2021	6.1		Toxic	US 4		III	E1	655 Y642	60 L 2 L	663	220 L
Hydrazine, anhydrous	2029	8	3 6.1	Corrosive & Liquid flammable & Toxic	US 4	[A20]	I	E0	FORBIDDEN		854	2.5 L
Butyl acrylates, stabilized	2348	3		Liquid flammable		A209	II	E2	353 Y341	5L 1L	364	60 L
1,2-Di-(dimethylamino) ethane	2372	3	6.1 8	Liquid flammable & Toxic & Corrosive			II	E2	353 Y341	5 L 1 L	364	60 L

Name	UN No.	Class or division	Sub-si diary hazard	Labels	State varia-tions	Special provi-sions	UN packing group	Excepted quantity	Passenger and cargo aircraft		Cargo aircraft only	
									Packing instruction	Max. net quantity per package	Packing instruction	Max. net quantity per package
1	2	3	4		6	7	8	9	10	11	12	13
Refrigerating machines containing non-flammable, non-toxic gases or ammonia solutions (UN 2672)	2857	2.2		Gas non-flammable		A26		E0	See 211		See 211	
Heating machines containing non-flammable, non-toxic gases or ammonia solutions (UN 2672)	2857	2.2		Gas non-flammable		A26		E0	See 211		See 211	

Paragraph 4.1.2.4 of DGP-WG/24 report:

Battery-powered equipment	3171	9		Miscellaneous		A67 A87 A94 A154 A182 [A199] A214		E0	952	No limit	952	No limit
Battery-powered vehicle	3171	9		Miscellaneous		A67 A87 A94 A154 [A199] A214		E0	952	No limit	952	No limit

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 3.2, dangerous goods list (see ST/SG/AC.10/52/Add.1)

Refrigerating machines containing flammable, non-toxic, liquefied gas	3358	2.1				A103			FORBIDDEN		FORBIDDEN	
Heating machines containing flammable, non-toxic, liquefied gas	3358	2.1				A103			FORBIDDEN		FORBIDDEN	
Vanadium pentoxide, non-fused form, containing less than 10 % respirable particles	2862	6.1		Toxic			III	E1	670 Y645	100 kg 10 kg	677	200 kg
Vanadium pentoxide, non-fused form, containing not less than 10 % respirable particles	2862	6.1		Toxic			II	E4	669 [?]	25 kg [0.5 L]	[676]	[100 kg]

Paragraph 4.1.2.1.4.1 a) of DGP-WG/25 report:

~~2,4-Difluoroaniline, see **Fluoroanilines**~~												
~~2-Fluoroaniline, see **Fluoroanilines**~~												

Name	UN No.	Class or division	Sub-si diary hazard	Labels	State varia-tions	Special provi-sions	UN packing group	Excepted quantity	Passenger and cargo aircraft		Cargo aircraft only	
									Packing instruction	Max. net quantity per package	Packing instruction	Max. net quantity per package
1	2	3	4		6	7	8	9	10	11	12	13
~~4-Fluoroaniline, see **Fluoroanilines**~~												
~~o-Fluoroaniline, see **Fluoroanilines**~~												
~~p-Fluoroaniline, see **Fluoroanilines**~~												

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 3.2, dangerous goods list (see ST/SG/AC.10/52/Add.1)

~~**Fluoroanilines**~~	~~2941~~	~~6.1~~		~~Toxic~~			~~III~~	~~E1~~	~~655 Y642~~	~~60 L 2 L~~	~~663~~	~~220 L~~
Environmentally hazardous substance, liquid, n.o.s.*	3082	9		Miscellaneous	DE 5 US 4	A97 A158 A197 A215 A238 A239	III	E1	964 Y964	450 L 30 kg G	964	450 L
Lithium ion batteries (including lithium ion polymer batteries)	3480	9		Miscellaneous — Lithium or sodium ion batteries	US 3	A88 A99 A154 A183 A201 A213 A235		E0	FORBIDDEN		See 965	
Lithium ion batteries contained in equipment (including lithium ion polymer batteries)	3481	9		Miscellaneous — Lithium or sodium ion batteries	US 3	A48 A88 A99 A154 A181 A185 A213 A220 A235		E0	967	5 kg	967	35 kg
Lithium ion batteries packed with equipment (including lithium ion polymer batteries)	3481	9		Miscellaneous — Lithium or sodium ion batteries	US 3	A88 A99 A154 A181 A185 A213 A235		E0	966	5 kg	966	35 kg
Sodium ion batteries with organic electrolyte	3551	9		Miscellaneous — Lithium or sodium ion batteries		A88 A99 A154 A183 A201 A228 A235		E0	FORBIDDEN		See 976	

Name	UN No.	Class or division	Sub-si diary hazard	Labels	State varia-tions	Special provi-sions	UN packing group	Excepted quantity	Passenger and cargo aircraft		Cargo aircraft only	
									Packing instruction	Max. net quantity per package	Packing instruction	Max. net quantity per package
1	2	3	4		6	7	8	9	10	11	12	13
Sodium ion batteries contained in equipment with organic electrolyte	3552	9		Miscellaneous — Lithium or sodium ion batteries		A48 A88 A99 A154 A185 A228 A235		E0	978	5 kg	978	35 kg
Sodium ion batteries packed with equipment with organic electrolyte	3552	9		Miscellaneous — Lithium or sodium ion batteries		A48 A88 A99 A154 A185 A228 A235		E0	977	5 kg	977	35 kg
Lithium ion batteries installed in cargo transport unit ~~lithium ion batteries or lithium metal batteries~~	3536	9				[A235]			FORBIDDEN		FORBIDDEN	
Articles containing non-flammable, non toxic gas, n.o.s.*	3538	2.2	See 2;0.6			A2 A88 A225 A236			FORBIDDEN		FORBIDDEN	
Chlorophenols, corrosive, toxic, solid, n.o.s.*	3561	8	6.1	Corrosive & Toxic			II	E2	859 Y844	15 kg 5 kg	863	50 kg
Chlorophenols, corrosive, solid, n.o.s.	3562	8		Corrosive			II	E2	859 Y844	15 kg 5 kg	863	50 kg
Lithium metal batteries installed in cargo transport unit	3563	9				[A235]			FORBIDDEN		FORBIDDEN	
Sodium ion batteries installed in cargo transport unit	3564	9				[A235]			FORBIDDEN		FORBIDDEN	

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Chapter 3

SPECIAL PROVISIONS

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Table 3-2. Special provisions

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Paragraph 4.1.2.1.4.1 e) of DGP-WG/25 report:

UN Model Regulations, Chapter 3.3, SP 145 (see ST/SG/AC.10/52/Add.1):

A9 (≈145) Alcoholic beverages ~~containing~~ with more than 24 per cent but not more than 70 per cent alcohol by volume, when packed in receptacles of 5 litres or less, are not subject to these Instructions when carried as cargo.

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 3.3, SP 119 (see ST/SG/AC.10/52/Add.1):

A26 (119) Refrigerating machines include air conditioning units and machines or other appliances which have been designed for the specific purpose of keeping food or other items at low temperature in an internal compartment. Heating machines include machines or other appliances which have been designed for the specific purpose of heating. Refrigerating or heating machines and ~~refrigerating machine~~ their components are considered not subject to these Instructions if containing less than 12 kg of a gas in Division 2.2 or if containing less than 12 L ammonia solution (UN 2672). Machines or other appliances that are used to perform heating and cooling functions may be transported either as "**Refrigerating machines**" or "**Heating machines**"

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 3.3, SP 172 (see ST/SG/AC.10/52/Add.1):

A78 (≈172) Where a radioactive material has a subsidiary hazard(s):

a) The substance must be allocated to Packing Group I, II or III, if appropriate, by application of the packing group criteria provided in Part 2 corresponding to the nature of the predominant subsidiary hazard.

b) Packages must be labelled with subsidiary hazard labels corresponding to each subsidiary hazard exhibited by the material in accordance with the relevant provisions of 5;3.2; corresponding placards must be affixed to cargo transport units in accordance with the relevant provisions of 5;3.6.

c) For the purposes of documentation and package marking, the proper shipping name must be supplemented with the name of the constituents which most predominantly contribute to ~~this~~ each subsidiary hazard(s) and which must be enclosed in parenthesis. However, where the constituent is listed by name in Table 3-1 and:

TIs *UN*

i) "forbidden" is shown in columns 10 and 11, the dangerous goods transport document must indicate Cargo Aircraft Only and the package must bear cargo aircraft only labels, except that the substance may be shipped on a passenger aircraft with the prior approval of the appropriate authority of the State of Origin and the State of the Operator under the conditions established by those authorities. A copy of the document of approval, showing the quantity limitations and the packaging requirements, must accompany the consignment; and

ii) "forbidden" is shown in columns 12 and 13, the substance is forbidden for transport by air except that the substance may be shipped on a cargo aircraft with the prior approval of the appropriate authority of the State of Origin and the State of the Operator under the conditions established by those authorities. A copy of the document of approval, showing the quantity limitations and the packaging requirements, must accompany the consignment.

Radioactive material with a subsidiary hazard of Division 4.2 in Packing Group I must be transported in Type B packages. These may be transported on passenger or cargo aircraft.

d) The dangerous goods transport document must indicate the class or division of ~~the~~ each subsidiary hazard and, where assigned, the packing group as required by 5;4.1.4.1 d) and e).

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 3.3, SP 405 (see ST/SG/AC.10/52/Add.1):

A87 Articles which are not fully enclosed by packaging, crates or other means that prevent ready identification are not subject to the marking requirements of 5;2 or the labelling requirements of 5;3.

See paragraph 4.4.2 of DGP-WG/25 report:

A88 Pre-production prototypes of lithium cells or batteries, or sodium ion cells or batteries, when these prototypes are transported for testing or ~~low~~ annual production runs ~~(that is, annual production runs consisting of not more than 100 lithium cells or batteries, or sodium ion cells or batteries)~~ of not more than 100 lithium cells or batteries, or sodium ion cells or batteries that have not been tested to the requirements in Part III, subsection 38.3 of the UN *Manual of Tests and Criteria* may be transported aboard cargo aircraft if approved by the appropriate authority of the State of Origin and the State of the Operator and the requirements in Packing Instruction 910 of the Supplement are met.

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 3.3, SP 291 (see ST/SG/AC.10/52/Add.1):

A103 (≈291) Flammable liquefied gases must be contained within refrigerating or heating machine components. These components must be designed and tested to at least three times the working pressure of the machinery. ~~The r~~Refrigerating or heating machines must be designed and constructed to contain the liquefied gas and preclude the risk of bursting or cracking of the pressure-retaining components during normal conditions of transport. Refrigerating or heating machines and ~~refrigerating machine~~ their components are considered not subject to these Instructions if containing less than 100 g flammable, non-toxic, liquefied gas. Machines that are used to perform heating and cooling functions may be transported either as "**Refrigerating machines**" or "**Heating machines**".

TIs *UN*

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 3.3, SP 301 (see ST/SG/AC.10/52/Add.1):

See also proposed amendment to Packing Instruction 962

A107 (≈301) This entry only applies to articles such as machinery, apparatus or devices containing dangerous goods as a residue or as an integral element of the articles. It must not be used for articles for which a proper shipping name already exists in Table 3-1. Such articles may in addition contain lithium cells or batteries or sodium ion cells or batteries, provided that the cells or batteries:

a) provide electrical power for the operation of the article; and

b) meet the requirements of Section II of Packing Instruction 967 for lithium ion cells or batteries, 970 for lithium metal cells or batteries or 978 for sodium ion cells or batteries.

Articles containing no other dangerous goods than cells or batteries must be transported under UN 3091, UN 3481 or UN 3552, as appropriate.

Where the quantity of dangerous goods exceeds the limits permitted by Packing Instruction 962, and the dangerous goods meet the provisions of Special Provision 301 of the UN Model Regulations, the articles may be transported only with the prior approval of the appropriate authority of the State of Origin and the State of the Operator under the written conditions established by those authorities.

Notwithstanding the quantities specified in Packing Instruction 962, articles may also contain up to 5 kg of UN 3077 – **Environmentally hazardous substance, solid, n.o.s.** and/or 5 L of UN 3082 – **Environmentally hazardous substance, liquid, n.o.s.** The quantity of environmentally hazardous substance must not be indicated on the dangerous goods transport document.

Articles containing only UN 3077 – **Environmentally hazardous substance, solid, n.o.s.** and/or UN 3082 – **Environmentally hazardous substance, liquid, n.o.s.** in quantities not exceeding 5 kg or 5 L, respectively, are not subject to these Instructions.

Note.— Where the quantity of dangerous goods in the article exceeds the quantity permitted by Special Provision 301 of the UN Model Regulations, or the dangerous goods are not permitted as limited quantity by the UN Model Regulations, classification of the article must be in accordance with Part 2, Introductory Chapter, 6.1 to 6.6.

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 3.3, SP 280 (see ST/SG/AC.10/52/Add.1):

A115 (280) This entry applies to safety devices for vehicles, vessels or aircraft, such as air bag inflators, air bag modules, seat belt pretensioners, and pyromechanical devices and which contain dangerous goods of Class 1 or dangerous goods of other classes and when transported as component parts and if these articles as presented for transport have been tested in accordance with test series 6 (c) of Part I of the UN *Manual of Tests and Criteria*, with no explosion of the device, no fragmentation of the device casing or pressure receptacle, and no projection hazard or thermal effect which would significantly hinder firefighting or other emergency response efforts in the immediate vicinity.

This entry does not apply to life saving ~~appliances described in Packing Instruction 955~~ (UN Nos. 2990 and 3072) or to fire suppressant dispersing devices (UN Nos. 0514 and 3559). However, this entry may be used for safety devices of Class 9 transported for installation in life-saving appliances (UN 2990) in accordance with Packing Instruction 955.

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Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 3.3, SP 360 (see ST/SG/AC.10/52/Add.1):

A185 (360) Vehicles only powered by lithium metal, lithium ion or sodium ion batteries must be assigned to UN 3556 **Vehicle, lithium ion battery powered** or UN 3557 **Vehicle, lithium metal battery powered** or UN 3558 **Vehicle, sodium ion battery powered**, as applicable. Vehicles powered only by hybrid batteries containing both lithium ion cells and sodium ion cells in accordance with 2;9.3 h) must be assigned to the entry UN 3556 **Vehicle, lithium ion battery powered**.

Lithium batteries, sodium ion batteries or hybrid batteries containing both lithium ion cells and sodium ion cells in accordance with 2;9.3 h) installed in cargo transport units, designed only to provide power external to the transport unit must be assigned to UN 3536 **Lithium ion batteries installed in cargo transport unit**, UN 3563 **Lithium metal batteries installed in cargo transport unit** or UN 3564 **Sodium ion batteries installed in cargo transport unit**, as applicable.

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 3.3, SP 363 (see ST/SG/AC.10/52/Add.1):

A208 (≈363) a) This entry applies to engines or machinery, powered by fuels classified as dangerous goods via internal combustion systems or fuel cells (such as combustion engines, generators, compressors, turbines, heating units).

b) Engines and machinery containing fuels meeting the classification criteria of Class 3 must be consigned under the entries UN 3528 – **Engine, internal combustion, flammable liquid powered** or UN 3528 – **Engine, fuel cell, flammable liquid powered** or UN 3528 – **Machinery, internal combustion, flammable liquid powered** or UN 3528 – **Machinery, fuel cell, flammable liquid powered**, as appropriate.

c) Engines and machinery containing fuels meeting the classification criteria of Division 2.1 must be consigned under the entries UN 3529 – **Engine, internal combustion, flammable gas powered** or UN 3529 – **Engine, fuel cell, flammable gas powered** or UN 3529 – **Machinery, internal combustion, flammable gas powered** or UN 3529 – **Machinery, fuel cell, flammable gas powered**, as appropriate.

Engines and machinery powered by both a flammable gas and a flammable liquid must be consigned under the appropriate UN 3529 entry.

d) Engines and machinery containing liquid fuels meeting the classification criteria for environmentally hazardous substances and not meeting the classification criteria of any other class or division, must be consigned under the entries UN 3530 – **Engine, internal combustion** or UN 3530 – **Machinery, internal combustion**, as appropriate.

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 3.3, SP 387 (see ST/SG/AC.10/52/Add.1):

A213 (387) Lithium batteries in conformity with 2;9.3 f) containing both primary lithium metal cells and rechargeable lithium ion cells must be assigned to UN Nos. 3090 or 3091 as appropriate. When such batteries are transported in accordance with Section IB of Packing Instruction 968 or in accordance with Section II of Packing Instruction 969 or 970, the total lithium content of all lithium metal cells contained in the battery must not exceed 1.5 g, and the total ~~capacity~~ watt-hour rating of all lithium ion cells contained in the battery must not exceed 10 Wh.

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Paragraphs 4.1.2.5 of DGP-WG/24 report and 4.1.2.1.4.1 g) of DGP-WG/25 report:

UN Model Regulations, Chapter 3.3, SP 388 (see ST/SG/AC.10/52/Add.1):

See also proposed amendment to Packing Instructions 950, 951 and 952

A214 (388) UN No. 3166 entries apply to vehicles powered by flammable liquid or flammable gas internal combustion engines or fuel cells.

Vehicles powered by a fuel cell engine must be assigned to UN 3166 **Vehicle, fuel cell, flammable gas powered** or UN 3166 **Vehicle, fuel cell, flammable liquid powered**, as appropriate. These entries include hybrid electric vehicles powered by both a fuel cell and an internal combustion engine with wet batteries, ~~sodium batteries, lithium metal batteries or lithium ion batteries~~ nickel-metal hydride batteries, metallic sodium batteries, sodium alloy batteries, lithium metal batteries, lithium ion batteries, hybrid batteries containing both lithium ion cells and sodium ion cells in accordance with 2;9.3 h) or sodium ion batteries, transported with the battery(ies) installed.

Other vehicles which contain an internal combustion engine must be assigned to UN 3166 **Vehicle, flammable gas powered** or UN 3166 **Vehicle, flammable liquid powered**, as appropriate. These entries include hybrid electric vehicles powered by both an internal combustion engine and wet batteries, ~~sodium batteries, lithium metal batteries or lithium ion batteries~~ nickel-metal hydride batteries, metallic sodium batteries, sodium alloy batteries, lithium metal batteries, lithium ion batteries, hybrid batteries containing both lithium ion cells and sodium ion cells in accordance with 2;9.3 h) or sodium ion batteries, transported with the battery(ies) installed.

If a vehicle is powered by a flammable liquid and a flammable gas internal combustion engine, it must be assigned to UN 3166 **Vehicle, flammable gas powered**.

Entry UN 3171 only applies to vehicles and equipment powered by wet batteries, metallic sodium batteries or sodium alloy batteries transported with these batteries installed.

UN 3556 **Vehicle, lithium ion battery powered**, UN 3557 **Vehicle, lithium metal battery powered** and UN 3558 **Vehicle, sodium ion battery powered**, as applicable, apply to vehicles powered by lithium ion, lithium metal or sodium ion batteries transported with the batteries installed. Vehicles powered only by hybrid batteries containing both lithium ion cells and sodium ion cells in accordance with 2;9.3 h) must be assigned to the entry UN 3556 **Vehicle, lithium ion battery powered**.

For the purpose of this special provision, vehicles are self-propelled apparatus designed to carry one or more persons or goods. Examples of such vehicles are cars, motorcycles, scooters, three- and four-wheeled vehicles or motorcycles, trucks, locomotives, bicycles (pedal cycles with a motor) and other vehicles of this type (such as self-balancing vehicles or vehicles not equipped with at least one seating position), wheelchairs, lawn tractors, self-propelled farming and construction equipment, boats and aircraft. When vehicles are transported in a packaging, some parts of the vehicle, other than the battery, may be detached from their frame to fit into the packaging.

Examples of equipment are lawnmowers, cleaning machines or model boats and model aircraft. Equipment powered by lithium metal batteries ~~or~~, lithium ion batteries or sodium ion batteries must be assigned to UN 3091 **Lithium metal batteries contained in equipment** or UN 3091 **Lithium metal batteries packed with equipment** or UN 3481 **Lithium ion batteries contained in equipment** or UN 3481 **Lithium ion batteries packed with equipment** or UN 3552 **Sodium ion batteries contained in equipment** or UN 3552 **Sodium ion batteries packed with equipment**, as appropriate. Lithium ion batteries ~~or~~, lithium metal batteries, hybrid batteries containing both lithium ion cells and sodium ion cells in accordance with 2;9.3 h) or sodium ion batteries installed in a cargo transport unit and designed only to provide power external to the cargo transport unit must be assigned to UN 3536 **Lithium ion batteries installed in cargo transport unit**, UN 3563 **Lithium metal batteries installed in cargo transport unit** or UN 3564 **Sodium ion batteries installed in cargo transport unit**, as appropriate.

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Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 3.3, SP 393 (see ST/SG/AC.10/52/Add.1):

A216 (393) The nitrocellulose must meet the criteria of the Bergmann-Junk test or methyl violet paper test in the UN *Manual of Tests and Criteria* Appendix 10. Tests of type 3 (c) need not be applied to dry or unmodified nitrocellulose.

Paragraph 4.1.2.1.4.1 c) of DGP-WG/25 report:

~~A226 (399) For articles that meet the definition for **Detonators, electronic** as described in Attachment 2 and assigned to UN Nos. 0511, 0512 and 0513, the entries for **Detonators, electric** (UN Nos. 0030, 0255 and 0456) may continue to be used until 30 June 2025.~~

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 3.3, SP 401 (see ST/SG/AC.10/52/Add.1):

A228 (401) Sodium ion cells and batteries with organic electrolyte must be transported as UN 3551 or UN 3552 as appropriate. Sodium ion batteries with aqueous alkali electrolyte must be transported as UN 2795 ~~**Batteries, wet, filled with alkali**, electric storage~~ Batteries containing metallic sodium or sodium alloy must be carried as UN 3292.

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 3.3, SP 405 (see ST/SG/AC.10/52/Add.1):

A230 (403) Nitrocellulose (NC) membrane filters covered by this entry with NC content not exceeding 53 g/m² and an NC net weight not exceeding 300 g per inner packaging, are not subject to the requirements of these Instructions if they meet the following conditions:

a) they are packed with paper separators of minimum 80 g/m² placed between each layer of NC membrane filters;

b) they are packed to maintain the alignment of the NC membrane filters and the paper separators in any of the following configurations:

1) rolls tightly wound and packed in plastic foil of minimum 80 g/m² or aluminium pouches with an oxygen permeability of equal or less than 0.1 per cent ~~according to~~ in accordance with standard ISO 15105-1:2007;

2) Sheets packed in cardboard of minimum 250 g per square metre or aluminium pouches with an oxygen permeability of equal or less than 0.1 per cent ~~according to~~ in accordance with standard ISO 15105-1:2007; or

3) round filters packed in disc holders or cardboard packaging of minimum 250 g per square metre or single packed in pouches of paper and plastic material of total minimum 100 g per square metre.

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UN Model Regulations, Chapter 3.3, SP 407 (see ST/SG/AC.10/52/Add.1):

A232 (407) Fire suppressant dispersing devices are articles that contain a pyrotechnic substance, are intended to disperse a fire extinguishing agent (or aerosol) when activated, and do not contain any other dangerous goods. These articles, as packaged for transport, must fulfil the criteria for Division 1.4S, when tested in accordance with test series 6(c) of Section 16 of Part 1 of the UN *Manual of Tests and Criteria*. The device must be transported with either the means of activation removed or equipped with at least two independent means to prevent accidental activation.

Fire suppressant dispersing devices must only be assigned to Class 9, UN 3559, if the following additional conditions are met:

a) the device meets the exclusion criteria in 2;1.5.2.4 b), c) and d);

b) the suppressant ~~must be~~ is deemed safe for normally-occupied spaces in compliance with international or regional standards (such as NFPA2010); and

c) the article ~~must be~~ is packaged in a manner such that when activated, temperatures of the outside of the package ~~must~~ do not exceed 200°C;

This entry must be used only with the approval of the appropriate national authority of the State of manufacture.

This entry does not apply to UN 3268 **Safety devices**, electrically initiated, described in Special Provision A115.

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 3.3, SP 410 (see ST/SG/AC.10/52/Add.1):

A235 410 Hybrid batteries in conformity with 2;9.3 h) containing both lithium ion cells and sodium ion cells must be assigned to UN 3480, UN 3481 or UN 3536, as appropriate. When such batteries are transported in accordance with Section IB of Packing Instruction 965, Section II of Packing Instruction 967 or Section II of Packing Instruction 968, the watt-hour rating must not exceed 100 Wh and must be marked on the outside case.

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 3.3, SP 411 (see ST/SG/AC.10/52/Add.1):

A236 411 Articles transported under this entry include magnetic resonance imaging (MRI) scanners containing non-flammable, non-toxic gas. The non-flammable, non-toxic gas must be contained within MRI scanner components. The MRI scanners must be designed and constructed to contain the gas and preclude the risk of bursting or cracking of the gas retaining components during normal conditions of transport. MRI scanners are not subject to these Instructions if they contain less than 12 kg of gas in Division 2.2.

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 3.3, SP 412 (see ST/SG/AC.10/52/Add.1):

A237 412 This entry may contain not more than 12% by mass of dimethyl ether.

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Paragraph 4.1.2.1.4.1 h) of DGP-WG/25 report:

UN Model Regulations, Chapter 3.3, SP 413 (see ST/SG/AC.10/52/Add.1):

A238	413	Liquid organic hydrogen carriers (LOHC) based on substances classified under this entry with physically dissolved hydrogen may only be transported under this entry when the content of physically dissolved hydrogen does not exceed 0.5 L(H_2)/kg(LOHC).

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 4.1, 4.1.3 (see ST/SG/AC.10/52/Add.1):

A239	For mixtures assigned to UN 3082 containing less than 1% of substances of highly toxic ingredients with an M factor of 10, 100, or 1000 (as described in 2.9.3.4.6.4 of the UN Model Regulations), plastics drums with removable heads containing quantities of more than 5 litres and not more than 20 litres per packaging are not subject to the performance tests in 6;4 for a transitional period until 31 December 2034, provided the packagings have successfully passed the stacking test in 6;4.6 for plastics drums intended for liquids and meet the general provisions of 4;1, except for 4;1.1.2, and 4;2.

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Part 4

PACKING INSTRUCTIONS

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Chapter 2

GENERAL

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Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 4.1, 4.1.3.4 (see ST/SG/AC.10/52/Add.1)

2.5 The following packagings must not be used when the substances being transported are liable to become liquid during transport:

Single packagings

For substances of Packing Group I, unless approved for the transport of liquids of Packing Group I:

Drums:	1A2, 1B2, 1H2 and 1N2
Jerricans:	3A2, 3B2 and 3H2

For substances of Packing Groups I, II and III:

Drums:	1D and 1G
Boxes:	4A, 4B, 4C1, 4C2, 4D, 4F, 4G ~~and~~, 4H1, 4H2 and 4N
Bags:	5L1, 5L2, 5L3, 5H1, 5H2, 5H3, 5H4, 5M1 and 5M2
Composite packagings:	6HC, 6HD1, 6HD2, 6HG1, 6HG2~~, 6HD1~~, 6PC, 6PD1, 6PD2, 6PG1, 6PG2 ~~and~~, 6PH1 and 6PH2.

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Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 4.1, 4.1.3.6.5 (see ST/SG/AC.10/52/Add.1)

2.7.6 The ~~level~~ degree of filling must not exceed 95 per cent of the capacity of the cylinder at 50°C. Sufficient ullage (outage) must be left to ensure that the cylinder will not be liquid full at a temperature of 55°C.

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Chapter 3

CLASS 1 – EXPLOSIVES

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Packing Instruction 130

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Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 4.1, 4.1.4.1, P130 (see ST/SG/AC.10/52/Add.1)

PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS:

— The following applies to UN 0006, 0009, 0010, 0015, 0016, 0018, 0019, 0034, 0035, 0038, 0039, 0048, 0056, 0137, 0138, 0168, 0169, 0171, 0181, 0182, 0183, 0186, 0221, 0238, 0243, 0244, 0245, 0246, 0254, 0280, 0281, 0286, 0287, 0297, 0299, 0300, 0301, 0303, 0321, 0328, 0329, 0344, 0345, 0346, 0347, 0362, 0363, 0370, 0412, 0424, 0425, 0434, 0435, 0436, 0437, 0438, 0451, 0459, 0488, 0502 and 0510. Large and robust explosive articles, normally intended for military use, without their means of initiation or with their means of initiation containing at least two effective protective features, may be carried unpackaged. When such articles have propelling charges or are self-propelled, their ignition systems must be protected against stimuli encountered during normal conditions of transport. A negative result in Test Series 4 on an unpackaged article indicates that the article can be considered for transport unpackaged. Such unpackaged articles may be fixed to cradles or contained in crates or other suitable handling, storage or launching devices in such a way that they will not become loose during normal conditions of transport. Where such large explosive articles are as part of their operational safety and suitability tests subjected to test regimes that meet the intentions of these Instructions and such tests have been successfully undertaken, the appropriate national authority may approve such articles to be transported under these Instructions.

— For UN 0457, 0458, 0459 and 0460, whenever loose explosive substances or the explosive substance of an uncased or partly cased article may come into contact with the inner surface of metal packagings (1A2, 1B2, 4A, 4B and metal receptacles), the metal packaging must be provided with an inner liner or coating.

— For UN Nos. 0012 and 0014, despite the requirements of 4;3.3.1.6, articles may be packed without internal cushioning, fittings, coating or liner in metal outer packagings.

Chapter 4

CLASS 2 – GASES

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4.1 SPECIAL PACKING PROVISIONS FOR DANGEROUS GOODS OF CLASS 2

4.1.1 General requirements

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Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 4.1, 4.1.6.1.2 (see ST/SG/AC.10/52/Add.1)

4.1.1.2 Parts of cylinders and closed cryogenic receptacles that are in direct contact with dangerous goods must not be affected or weakened by those dangerous goods and must not cause a dangerous effect (such as catalysing a reaction or reacting with the dangerous goods). In addition to the requirements specified in the relevant packing instruction, which take precedence, the applicable provisions of ISO 11114-1:2020 + Amd 1:2023 and ISO 11114-2:2021 must be met.

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Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 4.1, 4.1.6.1.8 (see ST/SG/AC.10/52/Add.1)

4.1.1.8 Valves must be designed and constructed in such a way that they are inherently able to withstand damage without release of the contents or must be protected from damage, which could cause inadvertent release of the contents of the cylinder and closed cryogenic receptacle, by one of the following methods:

a) Valves are placed inside the neck of the cylinder and closed cryogenic receptacle and protected by a threaded plug or cap;

b) Valves are protected by caps or guards. Caps must possess vent holes of a sufficient cross-sectional area to evacuate the gas if leakage occurs at the valves;

c) Valves are protected by shrouds or permanent protective attachments;

d) Not used; or

e) Cylinders and closed cryogenic receptacles are transported in an outer packaging. The packaging as prepared for transport must be capable of meeting the drop test specified in 6;4.3 at the Packing Group I performance level.

For cylinders and closed cryogenic receptacles with valves as described in b), the requirements of ISO 11117:1998, ISO 11117:2008 + Cor 1:2009 or ISO 11117:2019 must be met. Requirements for shrouds and permanent protective attachments used as valve protection under c) are given in the relevant pressure receptacle shell design standards, see 6;5.2.1. Valves with inherent protection used for refillable cylinders must meet the requirements of clause 4.6.2 of ISO 10297:2006, clause 5.5.2 of ISO 10297:2014, clause 5.5.2 of ISO 10297:2014 + Amd 1:2017 or clause 5.4.2 of ISO 10297:2024 or, in the case of self-closing valves, of clause 5.4.2 of ISO 17879:2017. For valves with inherent protection used for non-refillable cylinders, the requirements of clause 9.2.5 of ISO 11118:2015 or of clause 9.2.5 of ISO 11118:2015 + Amd 1:2019 must be met.

Packing Instruction 200

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The following requirements must be met:

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Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 4.1, 4.1.4.1, P200 (see ST/SG/AC.10/52/Add.1)

5) The filling of cylinders must be carried out by qualified staff using appropriate equipment and procedures. The procedures should include checks of:

   a) the conformity of cylinders and accessories with these Instructions;
   b) their compatibility with the product to be transported;
   c) the absence of damage which might affect safety;
   d) compliance with the ~~degree or pressure of filling~~ filling ratio or pressure of filling, as appropriate; and
   e) marks and identification.

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Chapter 6

CLASS 4 – FLAMMABLE SOLIDS; SUBSTANCES LIABLE TO SPONTANEOUS COMBUSTION; SUBSTANCES WHICH, IN CONTACT WITH WATER, EMIT FLAMMABLE GASES

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Packing Instruction 459

Passenger and cargo aircraft – self-reactive substances and polymerizing substances

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Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 4.1, 4.1.7.1.1 (see ST/SG/AC.10/52/Add.1)

ADDITIONAL PACKING REQUIREMENTS FOR COMBINATION PACKAGINGS

— Cushioning materials must not be readily combustible.
— Packagings must meet the Packing Group II performance requirements.
— To avoid the unnecessary confinement of liquids, metal packagings meeting the criteria of the internal pressure (hydraulic) test for Packing Group I must not be used.

Note.— The shipper should consult with the packaging manufacturer to verify that the metal packaging does not meet the internal pressure (hydraulic) test criteria for Packing Group I.

UN 3223 or UN3224

Energetic samples classified in accordance with Part 2, Introductory Chapter, paragraph 5.4 may be carried under UN 3223 or UN 3224, as appropriate, provided that:

1. The quantity per individual inner cavity does not exceed 0.01 g for solids or 0.01 mL for liquids and the maximum net quantity per outer packaging does not exceed 20 g for solids or 20 mL for liquids, or in the case of mixed packing the sum of grams and millilitres does not exceed 20:

   a) the samples are carried in microtiter plates or multi-titer plates made of plastics, glass, porcelain or stoneware as an inner packaging;

   b) only combination packaging with outer packaging comprising boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1 and 4H2) are permitted; or

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 4.1, 4.1.4.1, P520 (see ST/SG/AC.10/52/Add.1)

2. The maximum content of each inner packaging does not exceed 1 g for solids or 1 mL for liquids and the maximum net quantity per outer packaging does not exceed 56 g for solids or 56 mL for liquids, or in the case of mixed packing the sum of grams and millilitres does not exceed 56:

   a) The individual substance is contained in an inner packaging of glass or plastics of maximum capacity of 30 mL placed in an expandable polyethylene foam matrix of at least 130 mm thickness having a density of 18 ±1 g/L or 24 ± 2.4 g/l;

   b) Within the foam carrier, inner packagings are segregated from each other by a minimum distance of 40 mm and from the wall of the outer packaging by a minimum distance of 70 mm. The package may contain up to two layers of such foam matrices, each carrying up to twenty-eight inner packagings;

   c) The outer packaging consists only of corrugated fibreboard boxes (4G) having minimum dimensions of 60 cm (length) by 40.5 cm (width) by 30 cm (height) and minimum wall thickness of 1.3 cm.

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Packing Instruction 497

Passenger and cargo aircraft for UN 3476 (packed with equipment) only

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Paragraph 4.2.2.8 of DGP-WG/25 report:

ADDITIONAL PACKING REQUIREMENTS

— When fuel cell cartridges are packed with equipment, they must be packed in intermediate packagings together with the equipment they are capable of powering.
— The ~~maximum~~ number of fuel cell cartridges in the intermediate packaging must ~~be~~ not exceed the ~~minimum~~ number required ~~to power the equipment~~ for the equipment's operation, plus two spare~~s~~ sets. A "set of fuel cell cartridges is the number of individual fuel cell cartridges that are required to power each piece of equipment.
— The fuel cell cartridges and the equipment must be packed with cushioning material or divider(s) or inner packaging so that the fuel cell cartridges are protected against damage that may be caused by the movement or placement of the equipment and the cartridges within the packaging.
— The mass of each fuel cell cartridge must not exceed 1 kg.

OUTER PACKAGINGS OF COMBINATION PACKAGINGS (see 6;3.1)

Boxes	*Drums*	*Jerricans*
Strong outer packagings		

Chapter 7

CLASS 5 – OXIDIZING SUBSTANCES; ORGANIC PEROXIDES

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Packing Instruction 570

Passenger and cargo aircraft

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Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 4.1, 4.1.7.1.1 (see ST/SG/AC.10/52/Add.1)

ADDITIONAL PACKING REQUIREMENTS FOR COMBINATION PACKAGINGS

— Packagings must meet the Packing Group II performance requirements.
— To avoid the unnecessary confinement of liquids, metal packagings meeting the criteria of the internal pressure (hydraulic) test for Packing Group I must not be used.

Note.— The shipper should consult with the packaging manufacturer to verify that the metal packaging does not meet the internal pressure (hydraulic) test criteria for Packing Group I.

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Chapter 10

CLASS 8 – CORROSIVE SUBSTANCES

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Packing Instructions 854 – 856

Cargo aircraft only

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ADDITIONAL PACKING REQUIREMENTS FOR COMBINATION PACKAGINGS

Packing Group I

— Inner packagings must be packed with sufficient absorbent material to absorb the entire contents of the inner packagings and placed in a rigid leakproof receptacle before packing in outer packagings.

Packing Group III

— Packagings must meet the Packing Group II performance requirements.

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 4.1, 4.1.4.1, P001 (see ST/SG/AC.10/52/Add.1)

ADDITIONAL PACKING REQUIREMENTS FOR SINGLE PACKAGINGS

For UN 2029

When a cylinder is used, the internal pressure at 65°C must not exceed the test pressure.

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Chapter 11

CLASS 9 – MISCELLANEOUS DANGEROUS GOODS

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Packing Instruction 950

Passenger and cargo aircraft for UN 3166 only

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ADDITIONAL PACKING REQUIREMENTS

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Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 3.3, SP 388 (see ST/SG/AC.10/52/Add.1):

See also proposed amendment to Special Provision A214

Batteries

All batteries must be installed and securely fastened in the battery holder of the vehicle and must be protected in such a manner so as to prevent damage and short circuits. In addition:

1) If spillable batteries are installed, and it is possible for the vehicle to be handled in such a way that batteries would not remain in their intended orientation, they must be removed and packed according to Packing Instruction 870.

2) If lithium batteries or sodium ion batteries are installed:

   i) ~~lithium~~ batteries identified as being damaged or defective in accordance with Special Provision A154 are forbidden for transport; and

   ii) lithium batteries must meet the provisions of Part 2;9.3 and sodium ion batteries must meet the provisions of Part 2;9.4, except that pre-production prototypes of lithium batteries or cells or sodium ion batteries or cells, when these prototypes are transported for testing, or low production runs of lithium batteries or cells or sodium ion batteries or cells that have not been tested to the requirements in Part III, subsection 38.3 of the UN *Manual of Tests and Criteria* may be transported aboard cargo aircraft if approved by the appropriate authority of the State of Origin and the State of the Operator. A copy of the document of approval must accompany the consignment.

3) If metallic sodium or sodium alloy batteries are installed, they must conform to the requirements of Special Provision A94.

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Packing Instruction 951

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ADDITIONAL PACKING REQUIREMENTS

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Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 3.3, SP 388 (see ST/SG/AC.10/52/Add.1):

See also proposed amendment to Special Provision A214

Batteries

All batteries must be installed and securely fastened in the battery holder of the vehicle and must be protected in such a manner so as to prevent damage and short circuits. In addition:

1) If spillable batteries are installed, and it is possible for the vehicle to be handled in such a way that batteries would not remain in their intended orientation, they must be removed and packed according to Packing Instruction 870.

2) If lithium batteries or sodium ion batteries are installed:

   i) ~~lithium~~ batteries identified as being damaged or defective in accordance with Special Provision A154 are forbidden for transport; and

   ii) lithium batteries must meet the provisions of Part 2;9.3 and sodium ion batteries must meet the provisions of Part 2;9.4, except that pre-production prototypes of lithium batteries or cells or sodium ion batteries or cells, when these prototypes are transported for testing, or low production runs of lithium batteries or cells or sodium ion batteries or cells that have not been tested to the requirements in Part III, subsection 38.3 of the UN *Manual of Tests and Criteria* may be transported aboard cargo aircraft if approved by the appropriate authority of the State of Origin and the State of the Operator. A copy of the document of approval must accompany the consignment.

3) If metallic sodium or sodium alloy batteries are installed, they must conform to the requirements of Special Provision A94.

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Packing Instruction 952

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ADDITIONAL PACKING REQUIREMENTS

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Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 3.3, SP 388 (see ST/SG/AC.10/52/Add.1):

See also proposed amendment to Special Provision A214

Batteries

All batteries must be installed and securely fastened in the battery holder of the vehicle or equipment and must be protected in such a manner so as to prevent damage and short circuits. In addition:

1) If spillable batteries are installed, and it is possible for the vehicle or equipment to be handled in such a way that batteries would not remain in their intended orientation, they must be removed and packed according to Packing Instruction 870.

2) If lithium batteries or sodium ion batteries are installed:

   i) batteries identified as being damaged or defective in accordance with Special Provision A154 are forbidden for transport;

   ii) lithium batteries must meet the provisions of Part 2;9.3 and sodium ion batteries must meet the provisions of Part 2;9.4, except that pre-production prototypes of lithium batteries or cells or sodium ion batteries or cells, when these prototypes are transported for testing, or low production runs of lithium batteries or cells or sodium ion batteries or cells that have not been tested to the requirements in Part III, subsection 38.3 of the UN *Manual of Tests and Criteria* may be transported aboard cargo aircraft if approved by the appropriate authority of the State of Origin and the State of the Operator. A copy of the document of approval must accompany the consignment;

   iii) where the battery is removed from the vehicle and is packed separate from the vehicle in the same outer packaging, the package must be consigned as UN 3481 – **Lithium ion batteries packed with equipment**, UN 3552 – **Sodium ion batteries packed with equipment** or UN 3091 – **Lithium metal batteries packed with equipment** and packed according to Packing Instruction 966, 969 or 977, as applicable; and

   iv) for UN 3556 – **Vehicle, lithium ion battery powered**, UN 3557 – **Vehicle, lithium metal battery powered** when the battery is rechargeable, and UN 3558 – **Vehicle, sodium ion battery powered**:

      1) **Until 31 December 2025**

         Vehicles should be offered for transport with:

         — the battery(ies) at a state of charge not exceeding 30 per cent of their rated capacity; or
         — an indicated battery capacity not exceeding 25 per cent.

      2) **From 1 January 2026**

         a) Vehicles powered by batteries with a Watt-hour rating in excess of 100 Wh must be offered for transport with:

            — the battery(ies) at a state of charge not exceeding 30 per cent of their rated capacity; or
            — an indicated battery capacity not exceeding 25 per cent.

         b) Vehicles powered by batteries with a Watt-hour rating not in excess of 100 Wh should be offered for transport with:

            — the battery(ies) at a state of charge not exceeding 30 per cent of their rated capacity; or
            — an indicated battery capacity not exceeding 25 per cent.

c) Vehicles powered by batteries with a Watt-hour rating in excess of 100 Wh and at a state of charge exceeding 30 per cent of their rated capacity or with an indicated battery capacity exceeding 25 per cent may only be offered for transport with the approval of the appropriate national authorities of the State of Origin and the State of the Operator under the written conditions established by those authorities.

Note.— Guidance and methodology for determining the rated capacity can be found in sub-section 38.3.2.3 of the UN Manual of Tests and Criteria*. Cells and batteries shipped at a reduced state of charge are less prone to thermal runaway.*

3) If metallic sodium or sodium alloy batteries are installed, they must conform to the requirements of Special Provision A94.

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Packing Instruction 962

Passenger and cargo aircraft for UN 3363 only

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Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 3.3, SP 301 (see ST/SG/AC.10/52/Add.1):

See also proposed amendment to Special Provision A107

ADDITIONAL PACKING REQUIREMENTS

— If the article contains more than one item of dangerous goods and these could react dangerously with one another during transport, ~~the individual~~ each of the dangerous goods must be enclosed ~~to prevent them reacting dangerously with one another during transport~~ separately (see 4;1.1.3).
— Receptacles containing dangerous goods must be so secured or cushioned so as to prevent their breakage or leakage and so as to control their movement within the article during normal conditions of transport. Cushioning material must not react dangerously with the contents of the receptacles. Any leakage of the contents must not substantially impair the protective properties of the cushioning material.
— "Package orientation" labels (Figure 5-29), or preprinted orientation labels meeting the same specification as either Figure 5-29 or ISO Standard 780-1997 must be affixed on at least two opposite vertical sides with the arrows pointing in the correct direction only when required to ensure liquid dangerous goods remain in their intended orientation.
— Irrespective of 5;3.2.10, articles containing magnetized material meeting the requirements of Packing Instruction 953 must also bear the "Magnetized material" label (Figure 5-27).
— For Division 2.2 gases, cylinders for gases, their contents and filling ratios must conform to the requirements of Packing Instruction 200.
— Dangerous goods in articles must be packed in strong outer packagings unless the receptacles containing the dangerous goods are afforded adequate protection by the construction of the articles.

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Packing Instruction 965

Cargo aircraft only for UN 3480

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Paragraph 4.4.3 of DGP-WG/25 report:

IA. **SECTION IA**

Each cell or battery must meet the provisions of 2;9.3.

IA.1 **General requirements**

— Part 4;1 requirements must be met.
— Cells and batteries must be offered for transport at a state of charge not exceeding 30 per cent of their rated capacity. Cells and/or batteries at a state of charge greater than 30 per cent of their rated capacity may only be ~~shipped~~ offered for transport with the approval of the State of Origin and the State of the Operator under the written conditions established by those authorities.

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IB. **SECTION IB**

Cells or batteries prepared in accordance with this section are subject to all of the applicable provisions of these Instructions (including the requirements in paragraph 2 of this packing instruction and of this section) except for the provisions of Part 6.

Cells or batteries shipped in accordance with the provisions of Section IB must be described on a dangerous goods transport document as set in Part 5;4. The packing instruction number "965" required by 5;4.1.5.8.1 a) must be supplemented with "IB". All other applicable provisions of Part 5;4 apply.

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 3.3, SP 188 (see ST/SG/AC.10/52/Add.1):

Cells and batteries may be offered for transport provided that each cell and battery meets the provisions of 2;9.3 a), e) ~~and~~, g) and h) (if applicable) and the following:

1) for cells, the Watt-hour rating (see the Glossary of Terms in Attachment 2) is not more than 20 Wh;

2) for batteries, the Watt-hour rating is not more than 100 Wh;
— the Watt-hour rating must be marked on the outside of the battery case except for batteries manufactured before 1 January 2009;

Paragraph 4.4.3 of DGP-WG/25 report:

IB.1 **General requirements**

— Cells and batteries must be packed in strong outer packagings that conform to Part 4;1.1.1, 1.1.3.1 and 1.1.10 (except 1.1.10.1).
— Cells and batteries must be offered for transport at a state of charge not exceeding 30 per cent of their rated capacity. Cells and/or batteries at a state of charge greater than 30 per cent of their rated capacity may only be ~~shipped~~ offered for transport with the approval of the State of Origin and the State of the Operator under the written conditions established by those authorities.

Note.— Guidance and methodology for determining the rated capacity can be found in sub-section 38.3.2.3 of the UN Manual of Tests and Criteria. *Cells and batteries shipped at a reduced state of charge are less prone to thermal runaway.*

Table 965-IB

Contents	*Net quantity per package*	
	Passenger	*Cargo*
Lithium ion cells and batteries	Forbidden	10 kg

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Packing Instruction 966

Passenger and cargo aircraft for UN 3481 (packed with equipment) only

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II. **SECTION II**

Paragraph 4.2.2.5 of DGP-WG/25 report:

Cells and batteries packed with equipment, when complying with Section II of this packing instruction, are only subject to the following additional provisions of these Instructions:

— Part 1;2.3 (General – Transport of dangerous goods by post);
— Part 5;2.4.16 (Shipper's responsibilities – Special marking requirements for lithium batteries or sodium ion batteries);
— Part 7;4.4 (Operator's responsibilities – Reporting of dangerous goods accidents and incidents);
— Part 7;4.5 (Operator's responsibilities – Reporting of undeclared and misdeclared dangerous goods);
— Part 8;1.1 (Provisions concerning passengers and crew – Dangerous goods carried by passengers ~~or~~ and crew); and
— Paragraphs 1 and 2 of this packing instruction.

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 3.3, SP 188 (see ST/SG/AC.10/52/Add.1):

Cells and batteries may be offered for transport provided that each cell and battery meets the provisions of 2;9.3 a), e) ~~and~~, g) and h) (if applicable) and the following:

1) for cells, the Watt-hour rating (see the Glossary of Terms in Attachment 2) is not more than 20 Wh;

2) for batteries, the Watt-hour rating is not more than 100 Wh;
   – the Watt-hour rating must be marked on the outside case except for batteries manufactured before 1 January 2009.

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Packing Instruction 967

Passenger and cargo aircraft for UN 3481 (contained in equipment) only

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II. **SECTION II**

Paragraph 4.2.2.5 of DGP-WG/25 report:

Cells and batteries contained in equipment, when complying with Section II of this packing instruction, are only subject to the following additional provisions of these Instructions:

- Part 1;2.3 (General – Transport of dangerous goods by post);
- Part 5;2.4.16 (Shipper's responsibilities – Special marking requirements for lithium batteries or sodium ion batteries);
- Part 7;4.4 (Operator's responsibilities – Reporting of dangerous goods accidents and incidents);
- Part 7;4.5 (Operator's responsibilities – Reporting of undeclared and misdeclared dangerous goods);
- Part 8;1.1 (Provisions concerning passengers and crew – Dangerous goods carried by passengers ~~or~~ and crew); and
- Paragraphs 1 and 2 of this packing instruction.

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 3.3, SP 188 (see ST/SG/AC.10/52/Add.1):

Cells and batteries may be offered for transport provided that each cell and battery meets the provisions of 2;9.3 a), e) ~~and~~, g) and h) (if applicable) and the following:

1) for cells, the Watt-hour rating (see the Glossary of Terms in Attachment 2) is not more than 20 Wh;

2) for batteries, the Watt-hour rating is not more than 100 Wh;
   - the Watt-hour rating must be marked on the outside of the battery case except for batteries manufactured before 1 January 2009.

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II.2 **Additional requirements**

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Paragraph 4.1.2.1.5.1 a) of DGP-WG/25 report:

UN Model Regulations, Chapter 3.3, SP 188 (see ST/SG/AC.10/52/Add.1):

- Each package must be marked with the battery mark (Figure 5-3). The package must be of such size that there is adequate space to affix the mark on one side without the mark being folded.
  - This requirement does not apply to:
    - packages containing only button cell batteries installed in equipment (including circuit boards); and
    - packages containing no more than four cells or two batteries installed in equipment, where there are not more than two packages in the consignment.

    Note.— Where the equipment contains one or more button cells in addition to cells or batteries, the button cell or cells do not count toward package or consignment limits.

- Where a consignment includes packages bearing the battery mark (Figure 5-3), the words "lithium ion batteries, in compliance with Section II of PI967" must be placed on the air waybill, when an air waybill is used. Where packages of Section II batteries from multiple packing instructions are included on one air waybill, the compliance statement for the different battery types and/or packing instructions may be combined into a single statement provided that the statement identifies the applicable battery type(s) and packing instruction numbers.
- Any person preparing or offering cells or batteries for transport must receive adequate instruction on these requirements commensurate with the functions for which they are responsible.

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Packing Instruction 968

Cargo aircraft only for UN 3090

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IB. **SECTION IB**

Cells or batteries prepared in accordance with this section are subject to all of the applicable provisions of these Instructions (including the requirements in paragraph 2 of this packing instruction and of this section) except for the provisions of Part 6.

Cells or batteries shipped in accordance with the provisions of Section IB must be described on a dangerous goods transport document as set in Part 5;4. The packing instruction number "968" required by 5;4.1.5.8.1 a) must be supplemented with "IB". All other applicable provisions of Part 5;4 apply.

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 3.3, SP 188 (see ST/SG/AC.10/52/Add.1):

Cells and batteries may be offered for transport provided that each cell and battery meets the provisions of 2;9.3 a), e), f) (if applicable) ~~and~~, g) and h) (if applicable) and the following:

1) for cells, the lithium content is not more than 1 g;
2) for batteries, the aggregate lithium content is not more than 2 g.

IB.1 **General requirements**

Cells and batteries must be packed in strong outer packagings that conform to Part 4;1.1.1, 1.1.3.1 and 1.1.10 (except 1.1.10.1).

Table 968-IB

Contents	*Net quantity per package*	
	Passenger	*Cargo*
Lithium metal cells and batteries	Forbidden	2.5 kg

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Packing Instruction 969

Passenger and cargo aircraft for UN 3091 (packed with equipment) only

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II. **SECTION II**

Paragraph 4.2.2.5 of DGP-WG/25 report:

Cells and batteries packed with equipment, when complying with Section II of this packing instruction, are only subject to the following additional provisions of these Instructions:

— Part 1;2.3 (General – Transport of dangerous goods by post);
— Part 5;2.4.16 (Shipper's responsibilities – Special marking requirements for lithium batteries or sodium ion batteries);
— Part 7;4.4 (Operator's responsibilities – Reporting of dangerous goods accidents and incidents);
— Part 7;4.5 (Operator's responsibilities – Reporting of undeclared and misdeclared dangerous goods);
— Part 8;1.1 (Provisions concerning passengers and crew – Dangerous goods carried by passengers ~~or~~ and crew); and
— Paragraphs 1 and 2 of this packing instruction.

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 3.3, SP 188 (see ST/SG/AC.10/52/Add.1):

Lithium metal cells and batteries may be offered for transport provided that each cell and battery meets the provisions of 2;9.3 a),e), f) (if applicable) ~~and~~, g) and h) (if applicable) ~~-~~ and the following:

1) for cells, the lithium content is not more than 1 g;
2) for batteries, the aggregate lithium content is not more than 2 g.

Packing Instruction 970

Passenger and cargo aircraft for UN 3091 (contained in equipment) only

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II. **SECTION II**

Paragraph 4.2.2.5 of DGP-WG/25 report:

Cells and batteries contained in equipment, when complying with Section II of this packing instruction, are only subject to the following additional provisions of these Instructions:

— Part 1;2.3 (General – Transport of dangerous goods by post);
— Part 5;2.4.16 (Shipper's responsibilities – Special marking requirements for lithium batteries or sodium ion batteries);
— Part 7;4.4 (Operator's responsibilities – Reporting of dangerous goods accidents and incidents);
— Part 7;4.5 (Operator's responsibilities – Reporting of undeclared and misdeclared dangerous goods);
— Part 8;1.1 (Provisions concerning passengers and crew – Dangerous goods carried by passengers ~~or~~ and crew); and
— Paragraphs 1 and 2 of this packing instruction.

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 3.3, SP 188 (see ST/SG/AC.10/52/Add.1):

Cells and batteries may be offered for transport provided that each cell and battery meets the provisions of 2;9.3 a), e), f) (if applicable) ~~and~~, g) and h) (if applicable) and the following:

1) for cells, the lithium content is not more than 1 g;
2) for batteries, the aggregate lithium content is not more than 2 g.

II.2 **Additional requirements**

. . .

— Each package must be marked with the battery mark (Figure 5-3). The package must be of such size that there is adequate space to affix the mark on one side without the mark being folded.
  — This requirement does not apply to:
    — packages containing only button cell batteries installed in equipment (including circuit boards); and
    — packages containing no more than four cells or two batteries installed in equipment, where there are not more than two packages in the consignment.

Paragraph 4.1.2.1.5.1 a) of DGP-WG/25 report:

UN Model Regulations, Chapter 3.3, SP 188 (see ST/SG/AC.10/52/Add.1):

Note.— Where the equipment contains one or more button cells in addition to cells or batteries, the button cell or cells do not count toward package or consignment limits.

— Where a consignment includes packages bearing the battery mark (Figure 5-3), the words "lithium metal batteries, in compliance with Section II of PI970" must be placed on the air waybill, when an air waybill is used. Where packages of Section II batteries from multiple packing instructions are included on one air waybill, the compliance statement for the different battery types and/or packing instructions may be combined into a single statement provided that the statement identifies the applicable battery type(s) and packing instruction numbers.
— Any person preparing or offering cells or batteries for transport must receive adequate instruction on these requirements commensurate with the functions for which they are responsible.

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Packing Instruction 978

Passenger and cargo aircraft only for UN 3552 (contained in equipment) only

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II. SECTION II

. . .

II.2 **Additional requirements**

— The equipment must be secured against movement within the outer packaging and must be equipped with an effective means of preventing accidental activation.
— Cells and batteries must be protected so as to prevent short circuits.
— Where multiple pieces of equipment are packed in the same outer packaging, each piece of equipment must be packed to prevent contact with other equipment.
— Each package must be marked with the battery mark (Figure 5-3). The package must be of such size that there is adequate space to affix the mark on one side without the mark being folded.
  — This requirement does not apply to:
    — packages containing only button cell batteries installed in equipment (including circuit boards); and
    — packages containing no more than four cells or two batteries installed in equipment, where there are not more than two packages in the consignment.

Paragraph 4.1.2.1.5.1 a) of DGP-WG/25 report:

UN Model Regulations, Chapter 3.3, SP 188 (see ST/SG/AC.10/52/Add.1):

Note.— Where the equipment contains one or more button cells in addition to cells or batteries, the button cell or cells do not count toward package or consignment limits.

— Where a consignment includes packages bearing the battery mark (Figure 5-3), the words “sodium ion batteries, in compliance with Section II of PI978” must be placed on the air waybill, when an air waybill is used. Where packages of Section II batteries from multiple packing instructions are included on one air waybill, the compliance statement for the different battery types and/or packing instructions may be combined into a single statement provided that the statement identifies the applicable battery type(s) and packing instruction numbers.
— Any person preparing or offering cells or batteries for transport must receive adequate instruction on these requirements commensurate with the functions for which they are responsible.

. . .

Part 5

SHIPPER'S RESPONSIBILITIES

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Chapter 2

MARKING

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 5.2, 5.2.1.9.1 (see ST/SG/AC.10/52/Add.1):

. . .

2.4.16 ~~Special marking requirements for lithium batteries or sodium ion batteries~~Battery mark

. . .

2.4.16.2 The mark must indicate the appropriate UN number preceded by the letters "UN" as follows:

a) "UN 3090" for lithium metal cells or batteries;

b) "UN 3480" for lithium ion cells or batteries;

c) "UN 3551" for sodium ion cells or batteries;

~~c~~d) "UN 3091" for lithium metal cells or batteries contained in, or packed with, equipment;

~~d~~e) "UN 3481" for lithium ion cells or batteries contained in, or packed with, equipment; or

~~e~~f) "UN 3552" for sodium ion cells or batteries contained in, or packed with, equipment.

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 5.2, 5.2.1.9.2 (see ST/SG/AC.10/52/Add.1):

Where a package contains ~~lithium~~ cells or batteries assigned to different UN numbers, all applicable UN numbers must be indicated on one or more marks. However, where equipment contains one or more button cells in addition to cells or batteries there is no requirement for the UN number indicating the button cell or cells to be included on the mark.

2.4.16.3 The mark must be in the form of a rectangle or a square with hatched edging. The symbol (group of batteries, one damaged and emitting flame, above the UN number for lithium ion, lithium metal or sodium ion cells or batteries) must be black on white or suitable contrasting background. The hatching must be red. The mark must be a minimum dimension of 100 mm wide × 100 mm high and the minimum width of the hatching must be 5 mm. If the size of the package so requires, the dimensions may be reduced to not less than 100 mm wide × 70 mm high. Where dimensions are not specified, all features must be in approximate proportion to those shown on the full-size mark (Figure 5-3).

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 5.2, 5.2.1.9.3 (see ST/SG/AC.10/52/Add.1):

2.4.16.4 When both the battery mark and labels in accordance with 3.5 other than the Class 9 label for lithium batteries or sodium ion batteries (Figure 5-26) are required, the battery mark must be located on the same surface as the labels if the package dimensions are adequate.

~~2.4.16.4~~2.4.16.5 Packages containing lithium batteries that meet the requirements of Section IB of Packing Instructions 965 or 968 must bear both the battery mark (Figure 5-3) and the lithium battery or sodium ion battery Class 9 hazard label (Figure 5-26).

. . .

Figure 5-3. Battery mark

~~*Note. The mark shown in Figure 5-3 of the 2021–2022 edition of the Technical Instructions may continue to be applied until 31 December 2026.*~~

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Chapter 3

LABELLING

. . .

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 5.2, 5.2.2.2.1 (see ST/SG/AC.10/52/Add.1):

3.5 LABEL SPECIFICATIONS

3.5.1 Class hazard label specifications

3.5.1.1 Labels must satisfy the provisions of this section and conform, in terms of colour, symbols and general format, to the specimen labels shown in Figures 5-4 to 5-26. Corresponding specimen labels required for various modes of transport, with minor variations which do not affect the obvious meaning of the label, are also acceptable.

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Chapter 4

DOCUMENTATION

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4.1 DANGEROUS GOODS TRANSPORT INFORMATION

. . .

4.1.5 Information required in addition to the dangerous goods description

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Paragraph 4.2.2.3 of DGP-WG/25 report:

4.1.5.1 ~~*Quantity of dangerous goods, n*~~*N**umber* *of packages,* ~~*and*~~ *type of packaging*~~*s*~~ *and quantity of dangerous goods*

4.1.5.1.1 Except as specified in 4.1.5.2 to 4.1.5.1.7, ~~T~~the number of packages, type of packaging (such as steel drum, fibreboard box, etc.) and net quantity of dangerous goods in each package (by volume or mass, as appropriate) must be ~~indicated~~ included for each item of dangerous goods bearing a different proper shipping name, UN number or packing group. Abbreviations may be used to specify the unit of measurement for the quantity.

Moved from the end of 5;4.1.5.1 and replaced "indicated" with "included":

Note.— The number, type and capacity of each inner packaging within the outer packaging of a combination packaging is not required to be included.

For packages containing the same dangerous goods and quantity per package a multiple of the quantity may be ~~used~~ included. For example:

UN 1263, Paint, 3, PG II, 5 fibreboard boxes x 5 L

Consignment comprising packages of different quantities of the same dangerous good must be clearly identified. For example:

UN 1263, Paint, 3, PG II, 5 fibreboard boxes x 5 L, 10 fibreboard boxes x 10 L

UN packaging codes may only be used to supplement the description of the kind of package (such as one fibreboard box (4G)).

4.1.5.1.2 For limited quantities, where the letter "G" follows the quantity in column 11 of Table 3-1~~,~~:

a) the gross mass of each package must be ~~indicated,~~ included ~~rather than the net quantity (except~~;

b) for more than one package of limited quantities of ID 8000, Consumer commodity, either the actual gross mass of each package or the average gross mass of the packages must be included. For example: if there are 10 packages and the total gross mass of them is 100 kg, the dangerous goods transport document may show this as "average gross mass per package 10 kg"; or

c) when there are different dangerous goods packed together in the same outer packaging ~~which must be described as shown in paragraph e)) and~~, the net quantity of each dangerous goods followed by the gross mass of the completed package must be included~~;~~.

4.1.5.1.3 ~~a) f~~For empty uncleaned packagings as described by 4.1.4.3 b) only the number and type of packagings ~~need~~ must be ~~shown~~ included~~;~~.

4.1.5.1.4 ~~b) f~~For chemical kits and first aid kits, the total net mass of dangerous goods must be included. Where the kits contain solids and/or liquids, the net mass of liquids within the kits is to be calculated on a 1 to 1 basis of their volume, that is, 1 L equal to 1 kg~~;~~.

4.1.5.1.5 ~~c) f~~For dangerous goods in apparatus, articles or machinery ~~or apparatus~~, the individual total quantities of dangerous goods in solid, liquid or gaseous state, contained in the article(s) must be included~~;~~.

4.1.5.1.6 ~~d) f~~For dangerous goods transported in salvage packagings, an estimate of the quantity of dangerous goods must be ~~given~~ included~~;~~.

~~e) for dangerous goods in limited quantities with a 30 kg G limit in Table 3-1, where different dangerous goods are packed together in the same outer packaging, the net quantity of each dangerous goods followed by the gross mass of the completed package;~~

4.1.5.1.7 ~~f) f~~For explosive articles of Class 1, the net quantity ~~indicated~~ included for each package must be supplemented with the net explosive mass (see Part 1;3.1.1 for the definition of net explosive mass) contained in the package followed by the unit of measurement. The abbreviations "NEQ", "NEM" or "NEW" may be ~~indicated~~ included in association with the value provided.

Moved to below first paragraph under 5;4.1.5.1:

~~*Note: The number, type and capacity of each inner packaging within the outer packaging of a combination packaging is not required to be indicated.*~~

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Part 6

PACKAGING NOMENCLATURE, MARKING, REQUIREMENTS AND TESTS

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Chapter 3

REQUIREMENTS FOR PACKAGINGS

3.1 REQUIREMENTS FOR PACKAGINGS OTHER THAN INNER PACKAGINGS

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Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 6.1, 6.1.4.12.1 (see ST/SG/AC.10/52/Add.1)

3.1.11 Fibreboard boxes (including corrugated fibreboard boxes) 4G

3.1.11.1 Strong and good quality solid or double-faced corrugated fibreboard (single or multiwall) must be used, appropriate to the capacity of the box and to its intended use. The water resistance of the outer surface must be such that the increase in mass, as determined in a test carried out over a period of 30 minutes by the Cobb method of determining water absorption, is not greater than 155 g/m2 – see ~~ISO 535:2014~~ ISO 535:2023. It must have proper bending qualities. Fibreboard must be cut, creased without scoring, and slotted so as to permit assembly without cracking, surface breaks or undue bending. The fluting of corrugated fibreboard must be firmly glued to the facings.

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Chapter 4

PACKAGING PERFORMANCE TESTS

4.1 PERFORMANCE AND FREQUENCY OF TESTS

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Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 6.1, 6.1.5.1.3 (see ST/SG/AC.10/52/Add.1)

4.1.3 Appropriate ~~T~~tests must be repeated on production samples at intervals established by the appropriate national authority. For such tests on paper or fibreboard packagings, preparation at ambient conditions is considered equivalent to the provisions of 4.2.3.

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Chapter 5

REQUIREMENTS FOR THE CONSTRUCTION AND TESTING OF CYLINDERS AND CLOSED CRYOGENIC RECEPTACLES, AEROSOL DISPENSERS AND SMALL RECEPTACLES CONTAINING GAS (GAS CARTRIDGES) AND FUEL CELL CARTRIDGES CONTAINING LIQUEFIED FLAMMABLE GAS

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5.1 GENERAL REQUIREMENTS

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5.1.5 Initial inspection and testing

5.1.5.1 New cylinders, other than closed cryogenic receptacles and metal hydride storage systems, must be subjected to inspection and testing during and after manufacture in accordance with the applicable design standards or recognized technical codes including the following:

On an adequate sample of cylinder shells:

a) testing of the mechanical characteristics of the material of construction;

b) verification of the minimum wall thickness;

c) verification of the homogeneity of the material for each manufacturing batch;

d) inspection of the external and internal conditions;

e) inspection of the threads used to fit closures;

f) verification of the conformance with the design standard;

For all cylinder shells:

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 6.2, 6.2.1.5.1 (see ST/SG/AC.10/52/Add.1)

g) a hydraulic pressure test. Cylinder shells must meet the acceptance criteria specified in the design and construction technical standard or recognized technical code;

Note.— With the agreement of the appropriate national authority, the hydraulic pressure test may be replaced by a test using a gas, where such an operation does not entail any danger.

h) inspection and assessment of manufacturing defects and either repairing them or rendering the cylinder shells unserviceable. In the case of welded cylinder shells, particular attention must be paid to the quality of the welds;

i) an inspection of the marks on the cylinder shells;

j) in addition, cylinder shells intended for the transport of UN 1001 – Acetylene, dissolved, and UN 3374 – Acetylene, solvent free, must be inspected to ensure proper installation and condition of the porous material and, if applicable, the quantity of solvent.

On an adequate sample of closures:

k) verification of materials;

l) verification of dimensions;

m) verification of cleanliness;

n) inspection of completed assembly;

o) verification of the presence of marks;

For all closures:

p) testing for leakproofness;

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 6.2, 6.2.1.5.2 (see ST/SG/AC.10/52/Add.1)

5.1.5.2 Closed cryogenic receptacles must be subjected to testing and inspection during and after manufacture in accordance with the applicable design standards or recognized technical codes, including the following:

On an adequate sample of inner vessels:

a) testing of the mechanical characteristics of the material of construction;

b) verification of the minimum wall thickness;

c) inspection of the external and internal conditions;

d) verification of the conformance with the design standard or recognized technical code;

e) inspection of welds by radiographic, ultrasonic or other suitable non-destructive test method according to the applicable design and construction standard or recognized technical code;

For all inner vessels:

f) a hydraulic pressure test. The inner vessel must meet the acceptance criteria specified in the design and construction technical standard or recognized technical code;

Note.— With the agreement of the competent authority, the hydraulic pressure test may be replaced by a test using a gas, where such an operation does not entail any danger.

g) inspection and assessment of manufacturing defects and either repairing them or rendering the inner vessel unserviceable;

h) an inspection of the marks;

On an adequate sample of closures:

i) verification of materials;

j) verification of dimensions;

k) verification of cleanliness;

l) inspection of completed assembly;

m) verification of the presence of marks.

For all closures:

n) testing for leakproofness.

On an adequate sample of completed closed cryogenic receptacles:

o) testing the satisfactory operation of service equipment;

p) verification of the conformance with the design standard or recognized technical code.

For all completed closed cryogenic receptacles:

q) testing for leakproofness.

Note.— Closed cryogenic receptacles, which were constructed in accordance with the initial inspection and test requirements of 5.1.5.2 applicable in the 2021–2022 edition of these Instructions, but which do not conform to the requirements of 5.1.5.2 relating to the initial inspection and test applicable in the 2023–2024 edition of these Instructions, may continue to be used.

• • •

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 6.2, 6.2.1.6.1 (see ST/SG/AC.10/52/Add.1)

5.1.6 Periodic inspection and testing

5.1.6.1 Refillable cylinders other than cryogenic receptacles must be subjected to periodic inspections and tests by a body authorized by the appropriate national authority, in accordance with the following:

a) check of the external conditions of the cylinder and verification of the equipment and the external marks;

b) check of the internal conditions of the cylinder (such as internal inspection, verification of minimum wall thickness);

c) check of the threads either:

i) if there is evidence of corrosion; or

ii) if the closures or other service equipment are removed;

d) a hydraulic pressure test of the cylinder shell and, if necessary, verification of the characteristics of the material by suitable tests;

Note 1.— With the agreement of the appropriate national authority, the hydraulic pressure test may be replaced by a test using a gas, where such an operation does not entail any danger.

Note 2.— For seamless steel cylinder shells the check of 5.1.6.1 b) and hydraulic pressure test of 5.1.6.1 d) may be replaced by a procedure conforming to ISO 16148:2016 + Amd 1:2020 "Gas cylinders – Refillable seamless steel gas cylinders and tubes – Acoustic emission examination (AT) and follow-up ultrasonic examination (UT) for periodic inspection and testing".

Note 3.— The check of internal conditions of 5.1.6.1 b) and the hydraulic pressure test of 5.1.6.1.d) may be replaced by ultrasonic examination carried out in accordance with ISO 18119:2018 + Amd 1:2021 + Amd 2:2024 for seamless steel and seamless aluminium alloy cylinder shells. For a transitional period until 31 December 2026, the standard ISO 18119:2018 may be used for this same purpose. For a transitional period until 31 December 2028 the standard ISO 18119:2018 + Amd 1:2021 may be used for this same purpose. For a transitional period until 31 December 2024, the standard ISO 10461:2005 + Amd 1:2006 may be used for seamless aluminium alloy cylinders and ISO 6406:2005 may be used for seamless steel cylinder shells for this same purpose.

e) check of service equipment if to be reintroduced into service. This check may be carried out separately from the inspection of the cylinder shell.

Note.— For the periodic inspection and test frequencies, see Packing Instruction 200 or, for a chemical under pressure, Packing Instruction 218.

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5.2 REQUIREMENTS FOR UN CYLINDERS AND CLOSED CRYOGENIC RECEPTACLES

. . .

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 6.2, 6.2.2.1.1 (see ST/SG/AC.10/52/Add.1)

5.2.1 Design, construction and initial inspection and testing

5.2.1.1 The following standards apply for the design, construction and initial inspection and test of refillable UN cylinder shells, except that inspection requirements related to the conformity assessment system and approval must be in accordance with 5.2.5:

Reference	*Title*	*Applicable for manufacture*
. . .		
ISO 4706:2008	Gas cylinders – Refillable welded steel cylinders – Test pressure 60 bar and below.	~~Until further notice~~Until 31 December 2030

Reference	*Title*	*Applicable for manufacture*
ISO 4706:2023	Gas cylinders – Refillable welded steel cylinders – Test pressure 60 bar and below	Until further notice
. . .		

. . .

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 6.2, 6.2.1.3 (see ST/SG/AC.10/52/Add.1)

5.2.1.3 The following standards apply for the design, construction and initial inspection and test of UN acetylene cylinders except that inspection requirements related to the conformity assessment system and approval must be in accordance with 5.2.5.

Note.— The maximum of 1 000 L volume as mentioned in the ISO standard ISO 21029-1:2004 Cryogenic vessels, does not apply for refrigerated liquefied gases in closed cryogenic receptacles installed in apparatus (such as MRI or cooling machines).

For the cylinder shell:

Reference	*Title*	*Applicable for manufacture*
. . .		
ISO 4706:2008	Gas cylinders – Refillable welded steel cylinders – Test pressure 60 bar and below	~~Until further notice~~Until 31 December 2030
ISO 4706:2023	Gas cylinders – Refillable welded steel cylinders – Test pressure 60 bar and below	Until further notice
. . .		

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 6.2, 6.2.2.2 (see ST/SG/AC.10/52/Add.1)

5.2.2 Materials

In addition to the material requirements specified in the design and construction standards, and any restrictions specified in the applicable Packing Instruction for the gas(es) to be transported (such as Packing Instruction 200, Packing Instruction 202 or Packing Instruction 214), the following standards apply to material compatibility:

Reference	*Title*	*Applicable for manufacture*
ISO 11114-1:2020 + Amd 1:2023	Gas cylinders – Compatibility of cylinder and valve materials with gas contents – Part 1: Metallic materials.	Until further notice
. . .		

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 6.2, 6.2.2.3 (see ST/SG/AC.10/52/Add.1)

5.2.3 Closures and their protection

The following standards apply to the design, construction, and initial inspection and test of closures and their protection:

Reference	*Title*	*Applicable for manufacture*
. . .		
ISO 10297:2014 + Amd 1:2017	Gas cylinders – Cylinder valves – Specification and type testing	~~Until further notice~~ Until 31 December 2028
ISO 10297:2024	Gas cylinders – Cylinder valves – Specification and type testing	Until further notice
. . .		
ISO 14246:2014 + Amd 1:2017	Gas cylinders – Cylinder valves – Manufacturing tests and examination	~~Until further notice~~ Until 31 December 2030
ISO 14246:2022	Gas cylinders – Cylinder valves – Manufacturing tests and examinations	Until further notice
. . .		

. . .

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 6.2, 6.2.2.4 (see ST/SG/AC.10/52/Add.1)

5.2.4 Periodic inspection and test

5.2.4.1 The following standards apply to the periodic inspection and testing of UN cylinders:

Reference	*Title*	*Applicable for manufacture*
. . .		
ISO 18119:2018 + Amd 1:2021	Gas cylinders – Seamless steel and seamless aluminium-alloy gas cylinders and tubes – Periodic inspection and testing.	~~Until further notice~~Until 31 December 2028
ISO 18119:2018 + Amd 1:2021 + Amd 2:2024	Gas cylinders – Seamless steel and seamless aluminium-alloy gas cylinders and tubes – Periodic inspection and testing	Until further notice
. . .		
ISO 11623:2015	Gas cylinders – Composite construction – Periodic inspection and testing	~~Until further notice~~ Until 31 December 2028
ISO 11623:2023	Gas cylinders – Composite cylinders and tubes – Periodic inspection and testing *Note.— The pressure test must not be replaced by a non-destructive examination (NDE) technique, though such techniques can be used for monitoring purposes.*	Until further notice
ISO 22434:2006	Transportable gas cylinders – Inspection and maintenance of cylinder valves *Note.— These requirements may be met at times other than at the periodic inspection and test of UN cylinders.*	~~Until further notice~~ Until 31 December 2028
ISO 22434:2022	Gas cylinders – Inspection and maintenance of valves *Note.— These requirements may be met at times other than at the periodic inspection and test of UN cylinders.*	Until further notice

. . .

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 6.2, 6.2.2.7.3 (see ST/SG/AC.10/52/Add.1)

5.2.7 Marking of UN refillable cylinders and closed cryogenic receptacles

. . .

5.2.7.3 The following operational marks must be applied:

. . .

k) In the case of cylinders for UN 1001 **Acetylene, dissolved:**

i) the tare in kilograms consisting of the total of the mass of the empty cylinder shell, the service equipment (including porous material) not removed during filling, any coating, the solvent and the saturation gas expressed to three significant figures rounded down to the last digit followed by the letters “KG”. At least one decimal must be shown after the decimal point. For cylinders of less than 1 kg, the mass must be expressed to two significant figures rounded down to the last digit;

ii) the identity of the porous material (such as name or trademark); and

iii) the total mass of the filled acetylene cylinder in kilograms followed by the letters “KG”;

Acetylene cylinders constructed in accordance with the 2021-2022 Edition of the Technical Instructions may continue to be used without the application of the marks detailed in ii) and iii) when the marking can neither be applied on the cylinder shoulder nor applied on any neck ring.

l) In the case of cylinders for UN 3374 **Acetylene, solvent free:**

i) the tare in kilograms consisting of the total of the mass of the empty cylinder shell, the service equipment (including porous material) not removed during filling and any coating expressed to three significant figures rounded down to the last digit followed by the letters “KG”. At least one decimal must be shown after the decimal point. For cylinders of less than 1 kg, the mass must be expressed to two significant figures rounded down to the last digit;

ii) the identity of the porous material (such as name or trademark); and

iii) the total mass of the filled acetylene cylinder in kilograms followed by the letters “KG”.

Acetylene cylinders constructed in accordance with the 2021-2022 Edition of the Technical Instructions may continue to be used without the application of the marks detailed in ii) and iii) when the marking can neither be applied on the cylinder shoulder nor applied on any neck ring.

~~*Note.— Acetylene cylinders constructed in accordance with the 2021–2022 edition of these Instructions, which are not marked in accordance with 6;5.2.7.3 k) or l) applicable in the 2023–2024 edition of these Instructions, may continue to be used until the next periodic inspection and test two years after the coming into force of this edition of these Instructions, where they must be marked according to the provisions above or be taken out of operation.*~~

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 6.2, 6.2.2.7.4 (see ST/SG/AC.10/52/Add.1)

5.2.7.4 The following manufacturing marks must be applied:

. . .

p) In the case of steel cylinders and closed cryogenic receptacles and composite cylinders and closed cryogenic receptacles with steel liner intended for the transport of gases with a risk of hydrogen embrittlement, the letter “H” showing compatibility of the steel (see ISO 11114-1:2020 + Amd 1:2023);

. . .

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 6.2, 6.2.2.8.1 (see ST/SG/AC.10/52/Add.1)

5.2.8 Marking of non-refillable UN cylinders

5.2.8.1 Non-refillable UN cylinders must be marked clearly and legibly with certification and gas or cylinder specific marks. These marks must be permanently affixed (such as stencilled, stamped, engraved or etched) on the cylinder. Except when stencilled, the marks must be on the shoulder, top end or neck of the cylinder shell or on a permanently affixed component of the cylinder (such as welded collar). Except for the "UN" mark and the "DO NOT REFILL" mark, the minimum size of the marks must be 5 mm for cylinders with a diameter greater than or equal to 140 mm and 2.5 mm and for cylinders with a diameter less than 140 mm. The minimum size of the "UN" mark must be 10 mm for cylinders with a diameter greater than or equal to 140 mm and 5 mm for cylinders with a diameter less than 140 mm. The minimum size of the "DO NOT REFILL" mark must be 5 mm.

5.2.8.2 Non-refillable UN cylinders of seamless construction with a diameter of 40 mm or less may instead be permanently marked (e.g. stencilled, stamped, engraved or etched) on their side walls provided no harmful stress concentration is created, and the minimum cylindrical shell wall thickness is maintained. The minimum size of the marks must be 1.5 mm. The minimum size of the UN packaging symbol must be 3 mm. The minimum size of the "DO NOT REFILL" mark must be 3 mm.

5.2.8.~~2~~3 The marks listed in 5.2.7.2 to 5.2.7.4 must be applied with the exception of g), h) and m). The serial number o) may be replaced by the batch number. In addition, the words "DO NOT REFILL" in letters of at least 5 mm in height are required.

5.2.8.~~3~~4 The requirements of 5.2.7.5 must apply.

Note.— Non-refillable cylinders may, on account of their size, substitute a label for these permanent marks.

5.2.8.~~4~~5 Other marks are allowed provided they are made in low stress areas other than the side wall and are not of a size and depth that will create harmful stress concentrations. Such marks must not conflict with required marks.

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 6.2, 6.2.2.9.2 (see ST/SG/AC.10/52/Add.1)

5.2.9 Marking of UN metal hydride storage systems

. . .

5.2.9.2 The following marks must be applied:

. . .

j) In the case of steel cylinders and composite cylinders with steel liner, the letter "H" showing compatibility of the steel (see 1SO 11114-1:2020 + Amd 1:2023); and

. . .

Chapter 6

PACKAGINGS FOR INFECTIOUS SUBSTANCES OF CATEGORY A (UN 2814 AND UN 2900)

. . .

6.5 TEST REQUIREMENTS FOR PACKAGINGS

6.5.1 PERFORMANCE AND FREQUENCY OF TESTS

. . .

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 6.3, 6.3.5.1.3 (see ST/SG/AC.10/52/Add.1)

6.5.1.3 Appropriate ~~T~~tests must be repeated on production samples at intervals established by the competent authority.

. . .

Chapter 7

REQUIREMENTS FOR THE CONSTRUCTION, TESTING AND APPROVAL OF PACKAGES FOR RADIOACTIVE MATERIAL AND FOR THE APPROVAL OF SUCH MATERIAL

. . .

7.10 REQUIREMENTS FOR PACKAGES CONTAINING FISSILE MATERIAL

. . .

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 6.3, 6.4.11.2 (see ST/SG/AC.10/52/Add.1)

7.10.2 Packages containing fissile material that meet the provisions of subparagraph d) and one of the provisions of a) to c) below are excepted from the requirements of 7.10.4 to 7.10.14.

. . .

d) the total mass of beryllium, hydrogenous material enriched in deuterium, graphite and other allotropic forms of carbon in an individual package must not be greater than the mass of fissile nuclides in the package except where the total concentration of these materials does not exceed 1 g in any 1 000 g of material. Beryllium incorporated in copper alloys up to 4 per cent in ~~weight~~ mass of the alloy does not need to be considered.

. . .

Chapter 8

REQUIREMENTS FOR INTERMEDIATE BULK CONTAINERS

8.1 MARKING OF PACKAGING FOR INTERMEDIATE BULK CONTAINERS

. . .

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 6.5, 6.5.2.1.1 (see ST/SG/AC.10/52/Add.1)

8.1.2 The packaging mark consists of:

. . .

g) the ~~stacking test load~~ superimposed stacking test mass in kg. For IBCs not designed for stacking, the figure "0" must be shown;

. . .

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 6.5, 6.5.2.2.2 (see ST/SG/AC.10/52/Add.1)

8.1.3 The maximum permitted ~~stacking load~~ superimposed stacking mass applicable when the IBC is in use must be displayed on a symbol as shown in Figure 6-2 or Figure 6-3. The symbol must be durable and clearly visible.

. . .

Part 7

OPERATOR'S RESPONSIBILITIES

. . .

Chapter 2

STORAGE AND LOADING

. . .

Paragraph 4.2.2.2 of DGP-WG/24 report:

Table 7-2. Separation of explosive substances and articles

Division and compatibility group	1.3C	1.3G	1.4B	1.4C	1.4D	1.4E	1.4G	1.4S
1.3C		x	x				x	
1.3G	x		x	x	x	x		
1.4B	x	x		x	x	x	x	
1.4C		x	x				x	
1.4D		x	x				x	
1.4E		x	x				x	
1.4G	x		x	x	x	x		
1.4S								

An "x" at the intersection of a row and column indicates that explosives of these divisions and compatibility groups must be loaded into separate unit load devices and, when stowed aboard the aircraft, the unit load devices must be separated by other cargo with a minimum separation distance of 2 m. When not loaded in a unit load device, these explosives must be loaded into different, non-adjacent loading positions and separated by other cargo with a minimum separation distance of 2 m.

. . .

Paragraph 4.1.2.2 of DGP-WG/24 report:

2.15 HANDLING AND LOADING OF INTERMEDIATE BULK CONTAINERS (IBCs)

During handling and loading of intermediate bulk containers (IBCs), account must be taken of the IBC markings specified in 6;~~2.4.3~~8.1.3, if present.

. . .

Paragraph 4.2.2.3 of DGP-WG/24 report:

Chapter 4

PROVISION OF INFORMATION

. . .

4.1 INFORMATION TO THE PILOT-IN-COMMAND

. . .

4.1.1.1 Except as otherwise provided, the information required by 4.1.1 must include the following:

. . .

f) the number of packages and their exact loading location. For radioactive material see ~~g)~~ h) below;

. . .

Paragraph 4.2.2.5 of DGP-WG/24 report:

. . .

4.1.3 For UN 3480 (**Lithium ion batteries**) ~~and~~, UN 3090 (**Lithium metal batteries**) and UN 3551 (**Sodium ion batteries**), the information required by 4.1.1 may be replaced by the UN number, proper shipping name, class, total quantity at each specific loading location, the aerodrome at which the package(s) is to be unloaded and whether the package must be carried on cargo aircraft only. UN 3480 (**Lithium ion batteries**) ~~and~~, UN 3090 (**Lithium metal batteries**) and UN 3551 (**Sodium ion batteries**) carried under a State exemption must meet all of the requirements of 4.1.

. . .

Part 8

PROVISIONS CONCERNING PASSENGERS AND CREW

. . .

Chapter 1

PROVISIONS FOR DANGEROUS GOODS CARRIED BY PASSENGERS AND CREW

. . .

1.1 DANGEROUS GOODS CARRIED BY PASSENGERS AND CREW

Paragraph 4.3.1 of DGP-WG/25 report:

1.1.1 Passengers and crew are forbidden to carry dangerous goods either as or in carry-on baggage, checked baggage or on their person unless the dangerous goods are:

a) permitted in accordance with Table 8-1; and

b) for personal use only.

Note 1.— In addition to items owned or used by a passenger, "personal use" may also include items for use by others such as gifts; portable electronic devices provided by employers to employees for their use in work-related activities; or medical devices carried by device providers or medical professionals for imminent patient care.

Note 2.— Personal use does not include items carried for sales or distribution.

Note ~~1~~3.— The following dangerous goods may be commonly carried by passengers on other modes of transport, however, they are prohibited either as or in carry-on baggage, checked baggage or on the person:

a) personal medical oxygen devices that utilize liquid oxygen;

b) electroshock weapons (such as tasers) containing dangerous goods such as explosives, compressed gases, lithium batteries, etc.;

c) "strike anywhere" matches;

d) lighter fuel and lighter refills;

e) premixing burner lighter (see the Glossary of Terms in Attachment 2) without a means of protection against unintentional activation; and

f) battery-powered lighters powered by a lithium ion or lithium metal battery (such as laser plasma lighters, tesla coil lighters, flux lighters, arc lighters and double arc lighters) without a safety cap or means of protection against unintentional activation.

Note ~~2~~4.— Exceptions found in these Instructions are not reproduced in Table 8-1. The following dangerous goods are not subject to these Instructions:

a) Radio-pharmaceuticals contained within the body of a person as the result of medical treatment; and

b) Energy efficient lamps when in retail packaging and intended for personal or home use (see 1;2.6).

Note ~~3~~5.— States may implement additional restrictions in the interest of aviation security.

. . .

Attachment 1

LISTS OF PROPER SHIPPING NAMES

Editorial Note.— The list of UN numbers with associated proper shipping names in Attachment 1, Chapter 1 will be automatically generated and included in the 2027-2028 Edition of the Technical Instructions based on amendments to Table 3-1 approved by the ICAO Council.

. . .

Chapter 2

LIST OF N.O.S. AND GENERIC PROPER SHIPPING NAMES

. . .

THE MOST SPECIFIC APPLICABLE NAME MUST ALWAYS BE USED

Paragraph 4.1.2.1 of DGP-WG/25 report:

UN Model Regulations, Appendix A (see ST/SG/AC.10/52/Add.1)

Class or Division	*Subsidiary hazard*	*UN No.*	*Proper shipping name*
. . .			
CLASS 6			
Division 6.1 *Specific entries*			
6.1		3140	**Alkaloid salts, liquid, n.o.s.***
6.1		3140	**Alkaloids, liquid, n.o.s.***
6.1		1544	**Alkaloid salts, solid, n.o.s.***
6.1		1544	**Alkaloids, solid, n.o.s.***
6.1		3141	**Antimony compound, inorganic, liquid, n.o.s.***
6.1		1549	**Antimony compound, inorganic, solid, n.o.s.***
6.1		1556	**Arsenic compound, liquid, n.o.s.***
6.1		1557	**Arsenic compound, solid, n.o.s.***
6.1		1564	**Barium compound, n.o.s.***
6.1		1566	**Beryllium compound, n.o.s.***
6.1		2570	**Cadmium compound**
6.1	8	3277	**Chloroformates, toxic, corrosive, n.o.s.***
6.1	3 & 8	2742	**Chloroformates, toxic, corrosive, flammable, n.o.s.***
6.1		2020	**Chlorophenols, toxic, solid, n.o.s.***
6.1		2021	**Chlorophenols, toxic, liquid, n.o.s.***
. . .			
CLASS 8			
Specific entries			
8		3145	**Alkylphenols, liquid, n.o.s.** (including C_2-C_{12} homologues)
8		2430	**Alkylphenols, solid, n.o.s.** (including C_2-C_{12} homologues)
8		2735	**Amines, liquid, corrosive, n.o.s.***
8	3	2734	**Amines, liquid, corrosive, flammable, n.o.s.***
8		3259	**Amines, solid, corrosive, n.o.s.***
8		2837	**Bisulphates, aqueous solution**
8		2693	**Bisulphites, aqueous solution, n.o.s.**
8		1719	**Caustic alkali liquid, n.o.s.***
8	6.1	3561	**Chlorophenols, corrosive, toxic, solid, n.o.s.***
8		3562	**Chlorophenols, corrosive, solid, n.o.s.**
. . .			

APPENDIX B

PROPOSED AMENDMENTS TO THE SUPPLEMENT TO THE TECHNICAL INSTRUCTIONS

Part S-3

DANGEROUS GOODS LIST, SPECIAL PROVISIONS AND QUANTITY LIMITATIONS

. . .

Chapter 3 SUPPLEMENTARY DANGEROUS GOODS LIST Class 2

. . .

Table S-3-1. Supplementary Dangerous Goods List (Class 2)

Name	*UN No.*	*Class or division*	*Sub-si diary hazard*	*Labels*	*State varia-tions*	*Special provi-si ons*	*UN packing group*	*Excepted quantity*	*Passenger and cargo aircraft*		*Cargo aircraft only*	
									Packing instruction	*Max. net quantity per package*	*Packing instruction*	*Max. net quantity per package*
1	*2*	*3*	*4*		*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*
Paragraph 4.1.3.1 of DGP-WG/25 report:												
UN Model Regulations, Chapter 3.2, dangerous goods list (see ST/SG/AC.10/52/Add.1)												
Ethylene oxide	1040	2.3	2.1 8	Gas toxic & Gas flammable	AU 1 CA 7 IR 3 NL 1 US 3 US 4	A2 A131			See 210		See 210	
Ethylene oxide with nitrogen up to a total pressure of 1 MPa at 50ºC	1040	2.3	2.1 8	Gas toxic & Gas flammable	AU 1 CA 7 IR 3 NL 1 US 3 US 4	A2			FORBIDDEN		FORBIDDEN	
Ethylene oxide and carbon dioxide mixture with more than 9% but not more than 87% ethylene oxide	1041	2.1	8	Gas flammable	AU 1 CA 7 IR 3 NL 1 US 3	A1		E0	(200)	(5 kg)	200	25 kg

Name	UN No.	Class or division	Sub-si diary hazard	Labels	State varia-tions	Special provi-si ons	UN packing group	Excepted quantity	Passenger and cargo aircraft		Cargo aircraft only	
									Packing instruction	Max. net quantity per package	Packing instruction	Max. net quantity per package
1	2	3	4		6	7	8	9	10	11	12	13
Ethylene oxide and carbon dioxide mixture, with more than 87% ethylene oxide	3300	2.3	2.1 8	Gas toxic & Gas flammable & Corrosive	AU 1 CA 7 IR 3 NL 1 US 3 US 4	A2			See 210		See 210	
Petroleum gases, liquefied	1075	2.1		Gas flammable	AU 1 CA 7 IR 3 NL 1 US 3	A1 A237		E0	(200)	(5 kg)	200	150 kg
Hydrocarbon gas mixture, liquefied, n.o.s.*	1965	2.1		Gas flammable	AU 1 CA 7 IR 3 NL 1 US 3	A1 A237		E0	(200)	(5 kg)	200	150 kg
Heating machines containing flammable, non-toxic, liquefied gas	3358	2.1		Gas flammable		A103			FORBIDDEN		FORBIDDEN	
Refrigerating machines containing flammable, non-toxic, liquefied gas	3358	2.1		Gas flammable		A103			FORBIDDEN		FORBIDDEN	
Articles containing non-flammable, non toxic gas, n.o.s.*	3538	2.2	See 2;0.6	Gas non-flammable		A2 A88 A225 A236 A333 A335			FORBIDDEN		(221)	No limit

Chapter 4

SUPPLEMENTARY DANGEROUS GOODS LIST

Classes 3 to 9

Table S-3-1. Supplementary Dangerous Goods List (Classes 3 to 9)

Name	*UN No.*	*Class or division*	*Sub-si diary hazard*	*Labels*	*State varia-tions*	*Special provi-si ons*	*UN packing group*	*Excepted quantity*	*Passenger and cargo aircraft*		*Cargo aircraft only*	
									Packing instruction	*Max. net quantity per package*	*Packing instruction*	*Max. net quantity per package*
1	*2*	*3*	*4*		*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*
Paragraph 4.1.3.1 of DGP-WG/25 report:												
UN Model Regulations, Chapter 3.2, dangerous goods list (see ST/SG/AC.10/52/Add.1)												
Hydrazine, anhydrous	2029	8	3 6.1	Corrosive & Liquid flammable & Toxic	US 4	[A20]	I	E0	FORBIDDEN		854	2.5 L
Lithium ion batteries (including lithium ion polymer batteries)	3480	9		Miscellaneous — Lithium or sodium ion batteries	US 3	A88 A99 A154 A183 A201 A213 A235 A331 A334		E0	FORBIDDEN		See 965	
Sodium ion batteries with organic electrolyte	3551	9		Miscellaneous — Lithium or sodium ion batteries		A88 A99 A154 A183 A201 A228 A235 A331 A334		E0	FORBIDDEN		See 976	
Lithium ion batteries installed in cargo transport unit lithium ion batteries or lithium metal batteries	3536	9		Miscellaneous — Lithium or sodium ion batteries		[A235]			FORBIDDEN		FORBIDDEN	
Lithium metal batteries installed in cargo transport unit	3563	9		Miscellaneous — Lithium or sodium ion batteries		[A235]			FORBIDDEN		FORBIDDEN	

Name	UN No.	Class or division	Sub-si diary hazard	Labels	State varia-tions	Special provi-si ons	UN packing group	Excepted quantity	Passenger and cargo aircraft		Cargo aircraft only	
									Packing instruction	Max. net quantity per package	Packing instruction	Max. net quantity per package
1	2	3	4		6	7	8	9	10	11	12	13
Sodium ion batteries installed in cargo transport unit	3564	9		Miscellaneous — Lithium or sodium ion batteries		[A235]			FORBIDDEN		FORBIDDEN	

Paragraph 4.3.6 of DGP-WG/24 report:

Articles containing flammable liquid, n.o.s.*	3540	3	See 2;0.6	Liquid flam-mable		A2 A88 A333	I	E5	FORBIDDEN		(~~378~~379)	(60 L)

. . .

Chapter 6

SPECIAL PROVISIONS

. . .

Paragraph 4.1.3.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 3.3, SP 379 (see ST/SG/AC.10/52/Add.1):

A329 (379) Anhydrous ammonia adsorbed or absorbed on a solid contained in ammonia dispensing systems or cylinders intended to form part of such systems may be transported on cargo aircraft only with the prior approval of the appropriate authority of the State of Origin and the State of the Operator under the written conditions established by those authorities in addition to the following:

a) the adsorption or absorption presents the following properties:

1) the pressure at a temperature of 20°C in the cylinder is less than 0.6 bar;

2) the pressure at a temperature of 35°C in the cylinder is less than 1 bar;

3) the pressure at a temperature of 85°C in the cylinder is less than 12 bar;

b) the adsorbent or absorbent material must not have dangerous properties listed in Classes 1 to 8;

c) the maximum contents of a cylinder must be 10 kg of ammonia; and

d) cylinders containing adsorbed or absorbed ammonia must meet the following conditions:

1) cylinders must be made of a material compatible with ammonia as specified in ISO 11114-1:~~2012 + A1:2017~~ 2020 + Amd 1:2023;

2) cylinders and their means of closure must be hermetically sealed and able to contain the generated ammonia;

3) each cylinder must be able to withstand the pressure generated at 85°C with a volumetric expansion no greater than 0.1%;

4) each cylinder must be fitted with a device that allows for gas evacuation once pressure exceeds 15 bar without violent rupture, explosion or projection; and

5) each cylinder must be able to withstand a pressure of 20 bar without leakage when the pressure relief device is deactivated.

When offered for transport in an ammonia dispenser, the cylinders must be connected to the dispenser in such a way that the assembly is guaranteed to have the same strength as a single cylinder.

The properties of mechanical strength mentioned in this special provision must be tested using a prototype of a cylinder and/or dispenser filled to nominal capacity, by increasing the temperature until the specified pressures are reached.

The test results must be documented, must be traceable and must be communicated to the relevant authorities upon request.

Part S-4

PACKING INSTRUCTIONS

. . .

Chapter 4

CLASS 2 – GASES

. . .

4.1 SPECIAL PACKING PROVISIONS FOR DANGEROUS GOODS OF CLASS 2

4.1.1 General requirements

4.1.1.1 This section provides general requirements applicable to the use of cylinders and closed cryogenic receptacles for the transport of Class 2 gases (such as UN 1072 **Oxygen, compressed**). Cylinders and closed cryogenic receptacles must be constructed and closed so as to prevent any loss of contents which might be caused under normal conditions of transport, including by vibration, or by changes in temperature, humidity or pressure (resulting from change in altitude, for example).

Paragraph 4.1.3.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 4.1, 4.1.6.1.2 (see ST/SG/AC.10/52/Add.1)

4.1.1.2 Parts of cylinders and closed cryogenic receptacles that are in direct contact with dangerous goods must not be affected or weakened by those dangerous goods and must not cause a dangerous effect (such as catalysing a reaction or reacting with the dangerous goods). In addition to the requirements specified in the relevant packing instruction, which take precedence, the applicable provisions of ~~ISO 11114-1:2012 + A1:2017 and ISO 11114-2:2013~~ ISO 11114-1:2020 + Amd 1:2023 and ISO 11114-2:2021 must be met.

. . .

Packing Instruction 200

For cylinders, the general packing requirements of 4;1.1 and 4;4.1.1 must be met.

Cylinders, constructed as specified in 6;5 are authorized for the transport of a specific substance when specified in the following tables (Table 1 and Table 2). Cylinders other than UN marked and certified cylinders may be used if the design, construction, testing, approval and marks conform to the requirements of the appropriate national authority in which they are approved and filled. The substances contained must be permitted in cylinders and permitted for air transport according to these Instructions. Cylinders for which prescribed periodic tests have become due must not be charged and offered for transport until such retests have been successfully completed. Valves must be suitably protected or must be designed and constructed in such a manner that they are able to withstand damage without leakage as specified in Annex B of ISO 10297:1999. Cylinders with capacities of one litre or less must be packaged in outer packaging constructed of suitable material of adequate strength and design in relation to the packaging capacity and its intended use, and secured or cushioned so as to prevent significant movement within the outer packaging during normal conditions of transport. For some substances, the special packing provisions may prohibit a particular type of cylinder. The following requirements must be met:

. . .

Paragraph 4.1.3.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 4.1, 4.1.4.1, P200 (see ST/SG/AC.10/52/Add.1)

5) The filling of cylinders must be carried out by qualified staff using appropriate equipment and procedures. The procedures should include checks of:

a) the conformity of cylinders and accessories with these Instructions;
b) their compatibility with the product to be transported;
c) the absence of damage which might affect safety;
d) compliance with the ~~degree or pressure of filling~~ filling ratio or pressure of filling, as appropriate;
e) marks and identification.

These requirements are deemed to be met if the following standards are applied:

ISO 10691: 2004	Gas cylinders – Refillable welded steel cylinders for liquefied petroleum gas (LPG) – Procedures for checking before, during and after filling.
ISO 11372: 2011	Gas cylinders – Acetylene cylinders – Filling conditions and filling inspection
ISO 11755: 2005	Gas cylinders – Cylinder bundles for compressed and liquefied gases (excluding acetylene) – Inspection at time of filling
ISO 13088: 2011 + Amd 1:2020	Gas cylinders – Acetylene cylinder bundles – Filling conditions and filling inspection
ISO 24431:2016	Gas cylinders – Seamless, welded and composite cylinders for compressed and liquefied gases (excluding acetylene) – Inspection at time of filling

. . .

. . .

Packing Instruction 221

Cargo aircraft only for UN 3537 and UN 3538 only

General requirements

Part 4;1.1.1, 4;1.1.3, 4;1.1.12 and 4;2 requirements must be met.

Paragraph 4.3.6 of DGP-WG/24 report:

This entry applies to articles which do not have an existing proper shipping name and ~~which contain only dangerous goods permitted under Part 3;4.1.2 of the Technical Instructions, and exceed both the quantity limits for UN 3363 as prescribed in Special Provision A107 and the quantity limits permitted by Special Provision 301 of the UN Model Regulations~~ which do not comply with the conditions as prescribed either in Part 2; 6.0.a) or in Part 2;6.0 b).

Paragraph 4.2.3.1 of DGP-WG/25 report:

The following table provides the recommended maximum quantities of individual substances contained in a ~~single~~ package or in an unpackaged article.

UN number and name		*Net quantity ~~per package~~*
UN 3537	**Articles containing flammable gas, n.o.s.***	150 kg
UN 3538	**Articles containing non-flammable, non toxic gas, n.o.s.***	150 kg

. . .

. . .

Packing Instruction 379

Cargo aircraft only for UN 3540 only

General requirements

Part 4;1.1.1, 4;1.1.3, 4;1.1.12 and 4;2 requirements must be met.

Paragraph 4.3.6 of DGP-WG/24 report:

This entry applies to articles which do not have an existing proper shipping name and ~~which contain only dangerous goods permitted under Part 3;4.1.2 of the Technical Instructions, and exceed both the quantity limits for UN 3363 as prescribed in Special Provision A107 and the quantity limits permitted by Special Provision 301 of the UN Model Regulations~~ which do not comply with the conditions as prescribed either in Part 2; 6.0.a) or in Part 2;6.0 b).

Paragraph 4.2.3.1 of DGP-WG/25 report:

The following table provides the recommended maximum quantities of individual substances contained in a ~~single~~ package or in an unpackaged article.

UN number and name	*Net quantity ~~per package~~*
UN 3540 **Articles containing flammable liquid, n.o.s.***	60 L

. . .

. . .

Packing Instruction 400

Cargo aircraft only for UN 3541 only

General requirements

Part 4;1.1.1, 4;1.1.3, 4;1.1.12 and 4;2 requirements must be met.

Paragraph 4.3.6 of DGP-WG/24 report:

This entry applies to articles which do not have an existing proper shipping name and ~~which contain only dangerous goods permitted under Part 3;4.1.2 of the Technical Instructions, and exceed both the quantity limits for UN 3363 as prescribed in Special Provision A107 and the quantity limits permitted by Special Provision 301 of the UN Model Regulations~~ which do not comply with the conditions as prescribed either in Part 2; 6.0.a) or in Part 2;6.0 b).

Paragraph 4.2.3.1 of DGP-WG/25 report:

The following table provides the recommended maximum quantities of individual substances contained in a ~~single~~ package or in an unpackaged article.

UN number and name	*Net quantity ~~per package~~*
UN 3541 **Articles containing flammable solid, n.o.s.***	50 kg

. . .

. . .

Packing Instruction 600

Cargo aircraft only for UN 3546 only

General requirements

Part 4;1.1.1, 4;1.1.3, 4;1.1.12 and 4;2 requirements must be met.

Paragraph 4.3.6 of DGP-WG/24 report:

This entry applies to articles which do not have an existing proper shipping name and ~~which contain only dangerous goods permitted under Part 3;4.1.2 of the Technical Instructions, and exceed both the quantity limits for UN 3363 as prescribed in Special Provision A107 and the quantity limits permitted by Special Provision 301 of the UN Model Regulations~~ which do not comply with the conditions as prescribed either in Part 2; 6.0.a) or in Part 2;6.0 b).

Paragraph 4.2.3.1 of DGP-WG/25 report:

The following table provides the recommended maximum quantities of individual substances contained in a ~~single~~ package or in an unpackaged article.

UN number and name		*Net quantity ~~per package~~*	
		Liquid	*Solid*
UN 3546	**Articles containing toxic substance, n.o.s.***	60 L	100 kg

. . .

. . .

Packing Instructions 854 – 856

Cargo aircraft only

ADDITIONAL PACKING REQUIREMENTS FOR COMBINATION PACKAGINGS

Packing Group I

— Inner packagings must be packed with sufficient absorbent material to absorb the entire contents of the inner packagings and placed in a rigid leakproof receptacle before packing in outer packagings.

Packing Group III

— Packagings must meet the Packing Group II performance requirements.

Paragraph 4.1.3.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 4.1, 4.1.4.1, P001 (see ST/SG/AC.10/52/Add.1)

ADDITIONAL PACKING REQUIREMENTS FOR SINGLE PACKAGINGS

For UN 2029

When a cylinder is used, the internal pressure at 65°C must not exceed the test pressure.

. . .

Packing Instruction 877

Cargo aircraft only for UN 3547 only

General requirements

Part 4;1.1.1, 4;1.1.3, 4;1.1.12 and 4;2 requirements must be met.

Paragraph 4.3.6 of DGP-WG/24 report:

This entry applies to articles which do not have an existing proper shipping name and ~~which contain only dangerous goods permitted under Part 3;4.1.2 of the Technical Instructions, and exceed both the quantity limits for UN 3363 as prescribed in Special Provision A107 and the quantity limits permitted by Special Provision 301 of the UN Model Regulations~~ which do not comply with the conditions as prescribed either in Part 2; 6.0.a) or in Part 2;6.0 b).

Paragraph 4.2.3.1 of DGP-WG/25 report:

The following table provides the recommended maximum quantities of individual substances contained in a ~~single~~ package or in an unpackaged article.

UN number and name		*Net quantity ~~per package~~*	
		Liquid	*Solid*
UN 3547	**Articles containing corrosive substance, n.o.s.***	30 L	50 kg

. . .

. . .

Packing Instruction 973

Cargo aircraft only for UN 3548 only

General requirements

Part 4;1.1.1, 4;1.1.3, 4;1.1.12 and 4;2 requirements must be met.

Paragraph 4.3.6 of of DGP-WG/24 report:

This entry applies to articles which do not have an existing proper shipping name and ~~which contain only dangerous goods permitted under Part 3;4.1.2 of the Technical Instructions, and exceed both the quantity limits for UN 3363 as prescribed in Special Provision A107 and the quantity limits permitted by Special Provision 301 of the UN Model Regulations~~ which do not comply with the conditions as prescribed either in Part 2; 6.0.a) or in Part 2;6.0 b).

Paragraph 4.2.3.1 of DGP-WG/25 report:

The following table provides the recommended maximum quantities of individual substances contained in a ~~single~~ package or in an unpackaged article.

UN number and name		*Net quantity ~~per package~~*
UN 3548	**Articles containing miscellaneous dangerous goods, n.o.s.***	As indicated for the substance in Table 3-1 of the Technical Instructions

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Part S-5

STATE'S RESPONSIBILITIES WITH RESPECT TO SHIPPERS

(ADDITIONAL INFORMATION FOR PART 5 OF THE TECHNICAL INSTRUCTIONS)

. . .

Chapter 2

LABELLING

2.1 LABELS FOR ARTICLES CONTAINING DANGEROUS GOODS TRANSPORTED AS UN Nos. 3537, 3538, 3539, 3540, 3541, 3542, 3543, 3544, 3545, 3546, 3547 and 3548

Paragraph 4.1.3.1 of DGP-WG/25 report:

UN Model Regulations, Chapter 5.2, 5.2.2.1.13.1 (see ST/SG/AC.10/52/Add.1):

2.1.1 Packages containing dangerous goods in articles and dangerous goods in articles transported unpackaged must bear labels according to 5;3.1.1 of the Technical Instructions reflecting the hazards established according to Part 2, Introductory Chapter, paragraph 6 of the Technical Instructions. If the article contains one or more lithium batteries or sodium ion batteries with, for lithium metal batteries, an aggregate lithium content of 2 g or less, and for lithium ion batteries or sodium ion batteries, a Watt-hour rating of 100 Wh or less, the ~~lithium~~ battery mark (Figure 5-3 of the Technical Instructions) must be affixed to the package or unpackaged article. If the article contains one or more lithium batteries or sodium ion batteries with, for lithium metal batteries, an aggregate lithium content of more than 2 g, and for lithium ion batteries or sodium ion batteries, a Watt-hour rating of more than 100 Wh, the Class 9 label for lithium batteries or sodium ion batteries (Figure 5-26 of the Technical Instructions) must be affixed to the package or unpackaged article.

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Paragraph 4.2.2.5 of DGP-WG/25 report:

ATTACHMENT II TO CHAPTER 8

DANGEROUS GOODS MANUAL AND TRAINING PROGRAMME CHECKLISTS

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Attachment B

Dangerous Goods Training Programme – Approval Checklist

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Limitations	Applicable citations	Yes	No	N/A

. . .

3. Dangerous goods carried by passengers ~~or~~ and crew	8;1.1			

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APPENDIX C

PROPOSED AMENDMENTS TO THE EMERGENCY RESPONSE GUIDANCE

Paragraph 4.2.4.1 of DGP-WG/25 report:

Amendment to drill codes to reflect amendments to dangerous goods list in the UN Model Regulations, Chapter 3.2, dangerous goods list (see ST/SG/AC.10/52/Add.1):

Amend Tables 4-2 and 4-3 as indicated:

UN No.	*Drill Code*	*Proper shipping name*
1040	~~10P~~10CP	Ethylene oxide
1040	~~1P~~10CP	Ethylene oxide with nitrogen
1041	~~10L~~10C	Ethylene oxide and carbon dioxide mixture
3300	~~10P~~10CP	Ethylene oxide and carbon dioxide mixture
1727	~~8L~~8P	Ammonium hydrogendifluoride, solid
2020	6L	Chlorophenols, toxic, solid, n.o.s.*
2021	6L	Chlorophenols, toxic, liquid, n.o.s.*
2348	3L	Butyl acrylates, stabilized
2372	~~3L~~3CP	1,2-Di-(dimethylamino) ethane
2857	2L	Heating machines
3358	10L	Heating machines
2862	6L	Vanadium pentoxide
~~2941~~	~~6L~~	~~Fluoroanilines~~
3536	12FZ	Lithium ion batteries installed in cargo transport unit
3561	8P	Chlorophenols, corrosive, toxic, solid, n.o.s.*
3562	8L	Chlorophenols, corrosive, solid, n.o.s.
3563	12FZ	Lithium metal batteries installed in cargo transport unit
3564	12FZ	Sodium ion batteries installed in cargo transport unit

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APPENDIX D

DRAFT PROPOSED AMENDMENT TO ANNEX 18

PROPOSED AMENDMENT TO ANNEX 18 — THE SAFE TRANSPORT OF DANGEROUS GOODS BY AIR

PROPOSED AMENDMENT TO INTERNATIONAL STANDARDS AND RECOMMENDED PRACTICES

ANNEX 18

TO THE CONVENTION ON INTERNATIONAL CIVIL AVIATION

THE SAFE TRANSPORT OF DANGEROUS GOODS BY AIR

NOTES ON THE PRESENTATION OF THE PROPOSED AMENDMENT

The text of the amendment is arranged to show deleted text with a line through it and new text highlighted with grey shading, as shown below:

1.	~~Text to be deleted is shown with a line through it.~~	text to be deleted
2.	New text to be inserted is highlighted with grey shading.	new text to be inserted
3.	~~Text to be deleted is shown with a line through it~~ followed by the replacement text which is highlighted with grey shading.	new text to replace existing text

PROPOSED AMENDMENT TO

ANNEX 18

THE SAFE TRANSPORT OF DANGEROUS GOODS BY AIR

FOREWORD

Historical background

~~The material in this Annex was~~The provisions of Annex 18 govern the international transport of dangerous goods by air. They were developed by the Air Navigation Commission in response to a need expressed by Contracting States for an internationally agreed set of provisions governing the safe transport of dangerous goods by air. ~~In order to assist in achieving compatibility with the regulations covering the transport of dangerous goods by other modes of transport, the provisions of this Annex are based on the Recommendations of the United Nations Committee of Experts on the Transport of Dangerous Goods and the Regulations for the Safe Transport of Radioactive Materials of the International Atomic Energy Agency~~They were originally adopted by Council on 26 June 1981 and became applicable on 1 January 1984.

The significant growth and complexity in air cargo operations since Annex 18 was first adopted necessitates the implementation of the same proactive strategy to improve safety performance needed in other aviation sectors through the State safety programme (SSP). Accordingly, provisions aimed at ensuring States integrate dangerous goods operations within their SSP were adopted by Council on … 2026 through Amendment 13. The provisions provide clarity and sufficient detail to effectively outline States' responsibilities with respect to the safe transport of dangerous goods by air and the interrelationship of responsibilities between dangerous goods and other aviation activities.

Relationship with the *Technical Instructions for the Safe Transport of Dangerous Goods by Air* (Doc 9284)

~~The provisions of Annex 18 govern the international transport of dangerous goods by air.~~ The broad provisions of this Annex are amplified by the detailed specifications of the *Technical Instructions for the Safe Transport of Dangerous Goods by Air* (Doc 9284~~).~~) (Technical Instructions). The provisions of the Technical Instructions are based on recommendations on the transport of dangerous goods developed for all modes of transport by the United Nations Economic and Social Council's Committee of Experts on the Transport of Dangerous Goods. The intent of using this common base by all modes of transport is to allow cargo to be transferred safely and smoothly between air, sea, rail, and road modes. Modifications from these recommendations are made in the Technical Instructions to address specific aviation needs while keeping in mind the need to ensure modal compatibility.

Origin:	*Rationale:*
DGP/29	Justification: The objective of Annex 18 is currently provided under the heading for "Relationship with the *Technical Instructions for the Safe Transport of Dangerous Goods by Air*". It is proposed to move the objective as a general statement at the beginning of the Foreword under the heading for "Historical background" to make it immediately clear. The current text under "Historical background" about the provisions of the Annex being based on the Recommendations of the United Nations Committee of Experts on the Transport of Dangerous Goods and the Regulations for the Safe Transport of Radioactive Materials of the International Atomic Energy Agency is inaccurate. It is not the Annex that is based on these recommendations and regulations, but rather the Technical Instructions. It is proposed to explain the relationship with these bodies in the "Relationship with the Technical Instructions" section. It is also proposed to delete the reference to the IAEA regulations as it is considered unnecessary. The relevant material from these regulations are included in the United Nations recommendations upon which the Technical Instructions are based. The input from the IAEA is explained in the Foreword of the Technical Instructions. The adoption and applicability dates of the Annex are proposed for inclusion in the Annex for the sake of consistency with other Annexes.

Status of the Technical Instructions

The detailed requirements of the Technical Instructions are considered binding on a State by virtue of 2.3.1.1 of this Annex unless it has notified a difference to this provision under Article 38 of the Convention.

Origin:	*Rationale:*
DGP/29	Justification: The inside cover of Annex 18 explains the status of the Technical Instructions. The status was agreed by Contracting States in recognition of the critical role the Technical Instructions for safety. It is proposed to make this explanation more visible by including it in the Foreword.

Amendments to Annex 18 and the Technical Instructions

Annex 18 is intended to contain stable material requiring only minor amendments using the normal Annex amendment process. The Technical Instructions require more substantial and frequent amendments to keep up with day-to-day operational use.

The Air Navigation Commission established the Dangerous Goods Panel (DGP) and tasked it with maintaining the Technical Instructions. The DGP meets periodically to review comments received from States and interested international organizations, to consider any changed recommendations of the United Nations Committee, to address safety and facilitation issues specific to air transport and to prepare revised editions of the Technical Instructions. Amendments recommended by the DGP are published in panel meeting reports and made available on **www.icao.int/safety/DangerousGoods**.

Amendments recommended by the DGP are reviewed by the Air Navigation Commission and approved, issued and amended by the Council. Action taken by the Air Navigation Commission or the Council on the recommendations is published in the Supplement to DGP meeting reports and made available on **www.icao.int/safety/DangerousGoods/**.

A new edition of the Technical Instructions is published every two years. Amendments to the Technical Instructions during the specific period of applicability of an edition of the document may also be published if deemed necessary. Amendments during the specific period of applicability are made available on **www.icao.int/safety/dangerous** goods.

Origin:	*Rationale:*
DGP/29	Justification: The status and amendment process for the Technical Instructions is unlike that for any other ICAO provisions. It is therefore considered necessary to make the process and the ability for States to see amendments being proposed visible.

Guidance

Guidance to States on the implementation of Annex 18 is contained in *Oversight and Management of the Safe Transport of Dangerous Goods by Air Manual (Doc xxxxx, forthcoming).*

The Technical Instructions are supported by the *Supplement to the Technical Instructions for the Safe Transport of Dangerous Goods by Air* (Doc 9284). The Supplement contains guidance to assist States when considering authorizations to transport dangerous goods by air that the Technical Instructions forbid under normal circumstances through approvals or exemptions.

Origin:	*Rationale:*
DGP/29	Justification: A new section containing references to available guidance is proposed to support States.

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INTERNATIONAL STANDARDS AND RECOMMENDED PRACTICES

CHAPTER 1. DEFINITIONS

When the following terms are used in this Annex, they have the following meanings:

Approval. An authorization granted by an appropriate national authority for:

a) the transport of dangerous goods forbidden on passenger and/or cargo aircraft where the Technical Instructions state that such goods may be carried with an approval; or

b) other purposes as provided for in the Technical Instructions.

Note.— In the absence of a specific reference in the Technical Instructions allowing the granting of an approval, an exemption may be sought.

Baggage. Personal property of passengers or crew carried on an aircraft by agreement with the operator.

Origin:	*Rationale:*
	The amendment to Annex 18 includes the addition of references to baggage. The definition is replicated from Annex 9 and the Technical Instructions.

Cargo. Any property carried on an aircraft other than mail and accompanied or mishandled baggage.

Note.— This definition differs from the definition of "cargo" given in Annex 9 — Facilitation.

Origin:	*Rationale:*
DGP/29	The term is referred to in Annex 18. The definition is replicated from the Technical Instructions.

~~***Cargo aircraft.*** Any aircraft, other than a passenger aircraft, which is carrying goods or property.~~

Origin:	*Rationale:*
DGP/29	The definition is considered unnecessary. It has been wrongly interpreted by some States to determine who can be on an aircraft, when that determination is governed by Annex 6. Deleting it will help avoid such misinterpretations.

Civil aviation authority (CAA). The governmental entity or entities, however titled, that are directly responsible for the regulation of all aspects of civil air transport, technical (i.e. air navigation and aviation safety) and economic (i.e. the commercial aspects of air transport).

Origin:	*Rationale:*
DGP/29	The term is referred to in Annex 18. The definition is replicated from the *Safety Oversight Manual* (Doc 9734).

Consignment. One or more packages of dangerous goods accepted by an operator from one shipper at one time and at one address, receipted for in one lot and moving to one consignee at one destination address.

Crew member. A person assigned by an operator to duty on an aircraft during a flight duty period.

Dangerous goods accident. An occurrence associated with and related to the transport of dangerous goods by air, not necessarily occurring on board an aircraft, which results in fatal or serious injury to a person or major property or environmental damage.

Note.— A dangerous goods accident may also constitute an aircraft accident as defined in Annex 13 — Aircraft Accident and Incident Investigation.

Origin:	*Rationale:*
DGP/26 and DGP/29	Clarification that a dangerous goods accident is not restricted to an accident associated with the operation of an aircraft. The wording aligns with text in the definition for dangerous goods incident. It is important to capture accidents not associated with the operation of an aircraft because they could indicate a safety deficiency that might have resulted in an aircraft accident if the dangerous goods had been loaded on the aircraft. (see DGP/26 Report and DGP/26-IP/6)

Dangerous goods incident. An occurrence, other than a dangerous goods accident, associated with and related to the transport of dangerous goods by air, not necessarily occurring on board an aircraft~~, which results in injury to~~ where:

a) a person~~,~~ is injured;

b) there is property or environmental damage~~,~~;

c) there is fire, breakage, spillage, leakage of ~~fluid~~contents or radiation or there is other evidence that the integrity of the packaging has not been maintained~~. Any~~; or

d) ~~occurrence relating to the transport of dangerous goods which seriously jeopardizes~~the safety of the aircraft or its occupants ~~is also deemed to constitute a~~ is jeopardized.

Note.— A dangerous goods incident~~.~~ may also constitute an aircraft incident as defined in Annex 13 — Aircraft Accident and Incident Investigation.

Origin:	*Rationale:*
DGP/26 and DGP/29	— Editorial amendments to improve readability (see DGP/26 Report and DGP/26-IP/6). — "fluid" is replaced with "contents" to include solids. — Note added to establish relationship between a dangerous goods incident and an aircraft incident under Annex 13. It is similar to the one added under "Dangerous goods accident".

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.

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

Exemption. An authorization, other than an approval, granted by an appropriate national authority providing relief from the provisions of the Technical Instructions.

Flight crew member. A licensed crew member charged with duties essential to the operation of an aircraft during a flight duty period.

Misdeclared dangerous goods. Dangerous goods offered for transport by air that are identified to not be in accordance with the information provided on the dangerous goods transport document or other documentation, when applicable.

Note.— Dangerous goods identified by the operator during the acceptance check as not being in compliance with the applicable provisions of the Technical Instructions are not included in this definition.

Origin:	*Rationale:*
DGP/29	The term is referred to in Annex 18.

Mail. Dispatches of correspondence and other items tendered by, and intended for delivery to, postal services in accordance with the rules of the Universal Postal Union (UPU).

Origin:	*Rationale:*
DGP/29	The term is referred to in Annex 18.

Operator. A person, organization or enterprise engaged in or offering to engage in an aircraft operation.

Overpack. An enclosure used by a single shipper to contain one or more packages and to form one handling unit for convenience of handling and stowage.

Note.— A unit load device is not included in this definition.

Package. The complete product of the packing operation consisting of the packaging and its contents prepared for transport.

Packaging. ~~Receptacles~~One or more receptacles and any other components or materials necessary for the ~~receptacle~~receptacles to perform ~~its~~their containment ~~function~~and other safety functions.

Note.— For radioactive material, see Part 2, paragraph 7.~~2~~1.3 of the Technical Instructions.

Origin:	*Rationale:*
DGP/27 AN Min. 213-3	Recommended by DGP/27 (Recommendation 1/1). Harmonizes the definition with the one contained in the UN Recommendations on the Transport of Dangerous Goods and corrects an out-of-date reference in the note. The definition is also contained in the Technical Instructions and already aligns with the UN Model Regulations. The Air Navigation Commission made a preliminary review of Recommendation 1/1 and, noting the amendment was editorial in nature, agreed that it should be referred for comments to Contracting States and appropriate international organizations, together with the Commission's own comments and proposals thereon, only as part of a more substantive amendment to Annex 18. (AN Min. 213-3)

~~***Passenger aircraft.*** An aircraft that carries any person other than a crew member, an operator's employee in an official capacity, an authorized representative of an appropriate national authority or a person accompanying a consignment or other cargo.~~

Origin:	*Rationale:*
DGP/29	The definition is considered unnecessary. It has been wrongly interpreted by some States to determine who can be on an aircraft, when that determination is governed by Annex 6. Deleting it will help avoid such misinterpretations.

Pilot-in-command. The pilot designated by the operator, or in the case of general aviation, the owner, as being in command and charged with the safe conduct of a flight.

Remote pilot-in-command. The remote pilot designated by the operator as being in command and charged with the safe conduct of a flight.

Origin:	*Rationale:*
DGP/29	The term is referred to in Annex 18.

Safety management system (SMS). A systematic approach to managing safety, including the necessary organizational structures, accountabilities, policies and procedures.

Serious injury. An injury which is sustained by a person in an accident and which:

a) requires hospitalization for more than 48 hours, commencing within seven days from the date the injury was received; or

b) results in a fracture of any bone (except simple fractures of fingers, toes or nose); or

c) involves lacerations which cause severe haemorrhage, nerve, muscle or tendon damage; or

d) involves injury to any internal organ; or

e) involves second or third degree burns, or any burns affecting more than 5 per cent of the body surface; or

f) involves verified exposure to infectious substances or injurious radiation.

State of Destination. The State in the territory of which the consignment is finally to be unloaded from an aircraft.

State of Origin. The State in the territory of which the consignment is first to be loaded on an aircraft.

State of the Operator. The State in which the operator's principal place of business is located or, if there is no such place of business, the operator's permanent residence.

Technical Instructions. The *Technical Instructions for the Safe Transport of Dangerous Goods by Air* (Doc 9284), approved and issued periodically in accordance with the procedure established by the ICAO Council.

Undeclared dangerous goods. Dangerous goods offered for transport by air where there is no dangerous goods transport document or other documentation, when permitted, describing the contents as containing dangerous goods or the package is not marked or labelled to identify the contents as containing dangerous goods, as required by the Technical Instructions.

Origin:	*Rationale:*
DGP/29	The term is referred to in Annex 18.

UN number. The four-digit number assigned by the United Nations Committee of Experts on the Transport of Dangerous Goods and on the Globally Harmonized System of Classification and Labelling of Chemicals to identify an article or substance or a particular group of articles or substances.

Unit load device (ULD). ~~Any type of freight container,~~ A device for grouping and restraining cargo, mail and baggage for air transport. It is either an aircraft container~~,~~ or a combination of an aircraft pallet ~~with a net, or~~ and an aircraft pallet ~~with a~~ net ~~over an igloo~~. ~~Any type of freight container, aircraft container, aircraft pallet with a net, or aircraft pallet with a net over an igloo.~~ A ULD is designed to be directly restrained by the aircraft cargo loading system.

Note 1.— An overpack is not included in this definition.

Note 2.— A freight container for radioactive material is not included in this definition (see Part 2, paragraph 7.1.3 of the Technical Instructions).

Origin:	*Rationale:*
DGP/29 and DGP-WG/23	The definition has been in the Annex since its first edition. It is also contained in the Technical Instructions. The wording refers to older terminology and to articles that are no longer used. The amendment modernizes the terminology. The addition of Note 2 is made for the sake of alignment with the definition in the Technical Instructions. It was added to the Technical Instructions to differentiate a freight container for radioactive material from a ULD, because the former has specific characteristics that do not necessarily apply to a ULD. It was never made The amendment will ensure this concept is clear and ensure alignment between the two documents.

CHAPTER 2. ~~APPLICABILITY~~GENERAL

2.1 Objective

Each State shall have as a primary objective in the transport of dangerous goods by air the safety of the aircraft, its occupants, ground personnel, the general public and the environment.

Origin:	*Rationale:*
DGP/29	The safe transport of dangerous goods by air is dependent on the diligence of entities both within and outside the aviation system. The primary objective when using aviation to transport or carry dangerous goods for those outside the aviation system is not typically the safety of the aircraft and its occupants. It is therefore important to make this the primary objective when it comes to the safe transport of dangerous goods by air in addition to those entities that could be impacted by dangerous goods by other modes (i.e. ground personnel, the general public and the environment). This SARP is based on 2.1.1 of Annex 17 — *Security*, another Annex that deals with entities outside the aviation system.

~~2.1~~2.2 ~~General a~~Applicability

~~2.1.1~~2.2.1 The Standards and Recommended Practices of this Annex shall be applicable to ~~all~~ international ~~operations of~~ civil ~~aircraft~~ aviation.

Origin:	*Rationale:*
DGP/29	a) "General" is removed for the sake of consistency with other Annexes. b) Applying the Annex to aviation rather than to the operation of the aircraft is intended to ensure that entities other than the operator that contribute to the safe transport of dangerous goods are covered by this Annex.

The following is moved from 2.3:

2.2.2 **Recommendation.**— ~~*In the interests of safety and of minimizing interruptions to the international transport of dangerous goods, Each Contracting State should also take the necessary measures to achieve compliance with apply the Standards and Recommended Practices contained in this Annex and the Technical Instructions for to domestic civil aircraft operations aviation.*~~

Origin:	*Rationale:*
DGP/29	a) The provision relates to the applicability of the Annex and the Technical Instructions to domestic civil aircraft operations. There is a current recommendation to take the necessary measures to achieve compliance with the Annex and the Technical Instructions to domestic transport, but it is currently located outside of the applicability section of Chapter 2 (2.3). It is therefore proposed to move the recommended practice under the international applicability SARP. b) "Each" is added before "Contracting State" for the sake of consistency. c) The current recommendation refers to the Annex and the Technical Instruction. Removing the reference to the Technical Instructions is proposed as it is considered redundant, given that Annex 18 makes the document binding on a State.

	d) It is proposed to replace "to achieve compliance" with "apply" for the sake of clarity and consistency. e) Text referring to "the interests of safety and minimizing interruptions to the international transport of dangerous goods" is considered more appropriate as guidance material. It is therefore proposed to remove it from the recommended practice and to elaborate on the concept in a new guidance document to support the implementation of Annex 18 (*Oversight and Management of the Safe Transport of Dangerous Goods by Air Manual (Doc xxxxx, forthcoming)*. f) "to domestic aircraft operations" is replaced with "to domestic civil aviation" to align with the revision to the previous SARP for the same reason, i.e. to ensure that entities other than the operator that contribute to the safe transport of dangerous goods are covered.

The following is moved from 2.4.1:

~~2.4.1~~2.2.3 Articles and substances which would otherwise be ~~classed~~ classified as dangerous goods but which are required to be aboard the aircraft in accordance with the pertinent airworthiness requirements and operating regulations, or for those specialized purposes identified in the Technical Instructions, shall be excepted from the provisions of this Annex.

Origin:	*Rationale:*
DGP/29	The provision in current 2.4.1 relates to the applicability of the Annex and the Technical Instructions, but it is currently located outside of the applicability section of Chapter 2. It is therefore proposed to move the Standard to this section, i.e. the applicability section.

The following is moved from 2.4.2:

~~2.4.2~~2.2.4 Where articles and substances intended as replacements for those described in ~~2.4.1~~ 2.2.3 or which have been removed for replacement are carried on an aircraft, they shall be transported in accordance with the provisions of this Annex except as permitted in the Technical Instructions.

The following is moved to new 2.4.2.1:

~~2.1.2 Where specifically provided for in the Technical Instructions, the States concerned may grant an approval provided that in such instances an overall level of safety in transport which is equivalent to the level of safety provided for in the Technical Instructions is achieved.~~

The following is moved to new 2.4.2.2:

~~2.1.3 In instances:~~

~~a) of extreme urgency; or~~

~~b) when other forms of transport are inappropriate; or~~

~~c) when full compliance with the prescribed requirements is contrary to the public interest,~~

~~the States concerned may grant an exemption from the provisions of the Technical Instructions provided that in such instances every effort shall be made to achieve an overall level of safety in transport which is equivalent to the level of safety provided for in the Technical Instructions.~~

Origin:	*Rationale:*
DGP/29	It is proposed to move the approval and exemption provisions from the applicability section to the limitation on the transport of dangerous goods by air section because they are more associated with the latter than with applicability. Approvals and exemptions are already mentioned in that section, so keeping all the relevant SARPs together makes them more comprehensive.

~~2.1.4 For the State of Overflight, if none of the criteria for granting an exemption are relevant, an exemption may be granted based solely on whether it is believed that an equivalent level of safety in air transport has been achieved.~~

Origin:	*Rationale:*
DGP/29	The Standard in 2.1.4 is proposed for deletion as it is considered more appropriate to address its intent, which is not clear by the wording, in guidance material. The intent of the SARP is to address challenges faced by the State of Overflight when considering whether to grant an exemption when the criteria for granting it are not applicable to that State. The challenges faced by the State of overflight are transferred to applicants, who are often unable to acquire an exemption. Addressing the issue through guidance will allow for more comprehensive assistance to States on the subject.

Note 1 is moved to under 2.4.2.1 and Notes 2 and 3 are moved to under 2.4.2.2:

~~*Note 1. — For the purpose of approvals, "States concerned" are the States of Origin and the Operator, unless otherwise specified in the Technical Instructions.*~~

~~*Note 2. — For the purpose of exemptions, "States concerned" are the States of Origin, Operator, Transit, Overflight and Destination.*~~

~~*Note 3. — Guidance for the processing of exemptions, including examples of extreme urgency, may be found in the Supplement to the Technical Instructions (Part S-1, Chapter 1, 1.2 and 1.3).*~~

Origin:	*Rationale:*
DGP/29	Note 1 is specific to approvals and Notes 2 and 3 are specific to the exemptions. It is proposed to move Note 1 under the provision for approvals (now 2.4.2.1) and Notes 2 and 3 under the provision for exemptions (now 2.4.2.2) to improve clarity.

~~*Note 4. — Refer to 4.3 for dangerous goods forbidden for transport by air under any circumstances.*~~

Origin:	*Rationale:*
DGP/29	The note is necessary in the current Annex because the provisions for approvals and exemptions and the provisions for dangerous goods forbidden under any circumstance are in different sections of this chapter. This is no longer necessary, since all of these provisions are proposed for inclusion in the same location, i.e. the limitation on the transport of dangerous goods section.

Note 5 is moved to under the title of Chapter 6 (Operator's Responsibilities) as Note 4:

~~*Note 5.— It is not intended that this Annex be interpreted as requiring an operator to transport a particular article or substance or as preventing an operator from adopting special requirements on the transport of a particular article or substance.*~~

Origin:	*Rationale:*
DGP/29	The note is moved to Chapter 6: Operator responsibilities as Note 4. The note is currently under the provisions for approvals and exemptions, but its application goes beyond these. Moving the note to Chapter 6 makes the provisions for operators more comprehensive.

~~2.2~~2.3 Compliance with the Dangerous Goods Technical Instructions

~~2.2.1~~2.3.1 Each ~~Contracting~~ State shall take ~~the necessary~~ measures ~~to~~ aimed at ensuring that any entity that offers, handles, transports or causes to be offered, handled or transported dangerous goods in cargo or mail achieves compliance with the detailed provisions contained in the Technical Instructions.

2.3.2 Each State shall take measures aimed at ensuring that passengers and crew members achieve compliance with the detailed provisions contained in Part 8 of the Technical Instructions.

2.3.3 Each ~~Contracting~~ State shall ~~also~~ take ~~the necessary~~ measures to ensure the entities referred to in 2.3.1 and 2.3.2 achieve compliance with any amendment to the Technical Instructions which may be published during the specified period of applicability of an edition of the Technical Instructions.

Origin:	*Rationale:*
DGP/29	a) The revision to the heading in 2.3 is proposed to better describe the intent of the section. b) Which entities are subject to the Technical Instructions has been the subject of extensive discussions on the Dangerous Goods Panel, specifically with respect to whether entities handling cargo but not intending to handle dangerous goods can be subject to them. Entities such as freight forwarders play an important role in preventing undeclared dangerous goods from being introduced into the air cargo system, so there has been a desire by members of the DGP to require training on how to identify and reject dangerous goods for all such entities, even if they do not intend to handle them. Some States do not have authority to enforce dangerous goods regulations on entities not performing functions described in the Technical Instruction. However, they do have authority over a person or organization once they have performed a dangerous goods function, such as offering cargo for transport that includes dangerous goods, regardless of whether they knowingly or unknowingly perform the function. The amendment to is intended to capture this concept. c) The current Standard could incorrectly be interpreted to imply that the State needs to comply with the detailed provisions contained in the Technical Instructions. It is the entities performing functions related to the transport of dangerous goods by air and passengers and crew carrying dangerous goods that need to achieve compliance. The proposed amendment makes who needs to comply with the Technical Instructions clear. It separates the provision into two, one to address those dealing with dangerous goods in

	cargo or mail (2.3.1) and the other to address passengers and crew carrying dangerous goods (2.3.2). c) Current 2.2.1 contains two Standards. An editorial amendment is proposed to create a separate Standard for compliance with any amendment to the Technical Instructions (2.3.3).

The following is moved to 4.3:

~~2.2.2 **Recommendation.** *Each Contracting State should inform ICAO of difficulties encountered in the application of the Technical Instructions and of any amendments which it would be desirable to make to them.*~~

Origin:	*Rationale:*
DGP/29	It is proposed to move the requirement for States to inform ICAO of difficulties applying the Technical Instructions to a proposed new Chapter 3: Provision of information to ICAO. The new chapter is intended to contain all requirements related to providing ICAO with information in one place.

~~2.2.3~~2.3.4 **Recommendation.—** *Although an amendment to the Technical Instructions with an immediate applicability for reasons of safety may not yet have been implemented in a ~~Contracting~~ State, such State should, nevertheless, facilitate the movement of dangerous goods in its territory which are consigned from another ~~Contracting~~ State in accordance with that amendment, providing the goods comply in total with the revised requirements.*

The following is moved from 2.6:

~~2.6~~2.3.5 ~~Surface transport~~Multimodal transport

Recommendation.— *~~States~~ Each State should ~~make provisions~~ take measures to enable dangerous goods intended for air transport and prepared in accordance with the ~~ICAO~~ Technical Instructions to be accepted for ~~surface~~ transport by other modes of transport to or from aerodromes.*

Origin:	*Rationale:*
DGP/29	a) The amendment to the heading is proposed because multimodal transport is a common term in the dangerous goods world and makes the intent of the provision easier to understand. b) Editorial revisions are proposed for the sake of clarity and consistency. c) The references to “ICAO” is unnecessary as there is now a definition for “Technical Instructions”. d) It is proposed to move the recommendation from its current location to this location so that all provisions related to the Technical Instructions are in one place.

2.4 Limitation on the transport of dangerous goods by air

The following is moved from 4.1:

~~4.1~~2.4.1 Dangerous goods permitted for transport by air

2.4.1.1 Each State shall only permit ~~T~~the transport of dangerous goods as cargo or mail by air ~~shall be forbidden except~~ as established in this Annex and the detailed ~~specifications and procedures provided in~~ provisions of the Technical Instructions.

Origin:	*Rationale:*
DGP/29	a) Moved from Chapter 4 (Limitation on the transport of dangerous goods by air) to keep the general regulatory framework for transport of dangerous goods by air in one place. b) Editorial revisions to the Standard are proposed to improve clarity by aligning the wording with the header. c) "Each Contracting State" is added to reflect the fact that the SARP is directed at the State. d) The addition of a reference to cargo or mail is proposed to differentiate from passenger baggage in the next SARP (2.4.1.2). e) "specifications and procedures" is replaced with "provisions" for the sake of consistency with other parts of the Annex.

2.4.1.2 Each State shall only permit the carriage of dangerous goods by passengers or crew members when specifically permitted in accordance with Part 8 of the Technical Instructions.

Origin:	*Rationale:*
DGP/29	a) New Standard which replaces the exception from the Annex of specific articles and substances carried by passengers or crew members currently contained in 2.4.3 because dangerous goods carried by passengers and crew are not excepted from the Annex. They are forbidden unless specifically permitted in the Technical Instructions, and there are criteria for allowing them there. b) Having the provision here clarifies the distinction between dangerous goods carried as cargo and dangerous good carried by passengers and crew and the fact that they are both covered by the Annex

The following heading and Standard are moved from 4.2:

~~4.2~~2.4.2 Dangerous goods forbidden for transport by air unless approved or exempted

~~The dangerous goods described hereunder shall be forbidden on aircraft unless exempted by the States concerned under the provisions of 2.1 or~~ Each State shall not permit the transport of dangerous goods identified in the Technical Instructions as being forbidden for transport by air under normal circumstances unless the provisions of the Technical Instructions indicate they may be transported under an approval granted by the ~~State of Origin;~~ States concerned in accordance with 2.4.2.1 or an exemption granted by the States concerned in accordance with 2.4.2.2.

~~a) dangerous goods that are identified in the Technical Instructions as being forbidden for transport in normal circumstances; and~~

~~b) infected live animals.~~

Origin:	*Rationale:*
DGP/29	a) Moved from Chapter 4 (Limitation on the transport of dangerous goods by air) to keep the general regulatory framework for transport of dangerous goods by air in one place. b) The addition of "approved" in the heading is proposed because the SARP refers to both approvals and exemptions. c) "Each Contracting State shall not permit …" added to reflect the fact that the SARP is directed at the State. d) Editorial amendments to clarify intent. e) The references to exemption and approval provisions have changed because it is proposed to move these provisions from the general applicability section to this section. f) Reference to only State of Origin for an approval is inconsistent with what is currently in the general applicability section, which includes the State of the Operator as part of the approval process. "States concerned" is explained under the specific provisions for approvals (2.4.2.1) and exemptions (2.4.2.2) below. g) Deleted "infected live animals" because this is covered by the Technical Instructions.

2.4.2.1 Approvals

The following Standard is moved from 2.1.2:

~~2.1.2~~ Where specifically provided for in the Technical Instructions, the States concerned may grant an approval provided that in such instances an overall level of safety in transport which is equivalent to the level of safety provided for in the Technical Instructions is achieved.

Origin:	*Rationale:*
DGP/29	a) Moved from the current general applicability section in 2.1.2 as it relates more to the limitation provisions than to applicability provisions. b) Addition of heading for the sake of clarity.

The following noted is moved from 2.1 (below 2.1.4):

Note ~~1~~.— For the purpose of approvals, "States concerned" are the States of Origin and the Operator, unless otherwise specified in the Technical Instructions.

Origin:	*Rationale:*
DGP/29	The note applies to the States concerned when issuing an approval. It is moved from under 2.1.4 (Note 1) so that it is directly below the approval provision.

2.4.2.2 Exemptions

The following Standard is moved from 2.1.3:

~~2.1.3~~ In instances:

a) of extreme urgency; or

b) when other forms of transport are inappropriate; or

c) when full compliance with the prescribed requirements is contrary to the public interest,

the States concerned may grant an exemption from the provisions of the Technical Instructions provided that in such instances every effort shall be made to achieve an overall level of safety in transport which is equivalent to the level of safety provided for in the Technical Instructions.

Origin:	*Rationale:*
DGP/29	a) Moved from the current general applicability section in 2.1.3 as it relates more to the limitation provisions than to applicability provisions. b) Addition of heading for the sake of clarity.

The following note is moved from 2.1 (below 2.1.4):

Note ~~2~~ 1.— For the purpose of exemptions, "States concerned" are the States of Origin, Operator, Transit, Overflight and Destination.

Origin:	*Rationale:*
DGP/29	The note applies to the States concerned when issuing an exemption. It is moved from under 2.1.4 (Note 2) so that it is directly below the exemption provision.

The following note is moved from 2.1 (below 2.1.4):

Note ~~3~~ 2.— Guidance for the processing of exemptions, including examples of extreme urgency, may be found in the ~~Supplement to the Technical Instructions (Part S-1, Chapter 1, 1.2 and 1.3)~~ Oversight and Management of the Safe Transport of Dangerous Goods by Air Manual *(Doc xxxx, forthcoming), Chapter yy*.

Origin:	*Rationale:*
DGP/29	The guidance for processing of exemptions is currently contained in the Supplement to the Technical Instructions, but it is proposed to move all guidance specific to States from the Supplement to a new manual so that all guidance is consolidated in one place. The note is updated accordingly.

The following heading and Standard are moved from 4.3:

~~4.3~~2.4.3 Dangerous goods forbidden for transport by air under any circumstances

~~Articles and substances that are specifically identified by name or by generic description in the Technical Instructions as being forbidden for transport by air under any circumstances shall not be carried on any aircraft.~~

2.4.3.1 Each State shall forbid any article or substance to be transported by air under any circumstance if, as presented for transport, it is liable to explode, dangerously react, produce a flame or dangerous evolution of heat or dangerous emission of toxic, corrosive or flammable gases or vapours under conditions normally encountered in transport.

2.4.3.2 Each State shall not grant approvals or exemptions for articles and substances identified in 2.4.3.1.

Note.— Guidance on dangerous goods forbidden for transport under any circumstance is provided in Doc xxxx (forthcoming), Chapter yy.

Origin:	*Rationale:*
DGP/29	a) Moved from Chapter 4 (Limitation on the transport of dangerous goods by air) to keep the general regulatory framework for transport of dangerous goods by air in one place. b) The current SARP in 4.3 refers to articles or substances specifically identified by name or by generic description in the Technical Instructions as being forbidden for transport under and circumstance. The Technical Instructions make it clear that it is not possible to list all dangerous goods that should be forbidden under any circumstance. It is therefore proposed to include an explanation of what cannot be safely transported on an aircraft in the SARP and to include guidance for determining this in the new document referred to in the note. c) States should not grant approvals or exemptions to transport such articles or substances. New 2.4.3.2 makes this clear.

The following is moved to 2.2:

~~**2.3 Domestic civil aircraft operations**~~

~~**Recommendation.** *In the interests of safety and of minimizing interruptions to the international transport of dangerous goods, Contracting States should also take the necessary measures to achieve compliance with the Annex and the Technical Instructions for domestic civil aircraft operations.*~~

Origin:	*Rationale:*
DGP/29	The recommendation relates to the applicability of the Annex and the Technical Instructions to domestic civil aircraft operations. It is therefore proposed to move the recommended practice to the applicability section of this chapter (2.2.2).

The following is moved to 2.2.3:

~~**2.4 Exceptions**~~

~~2.4.1 Articles and substances which would otherwise be classed as dangerous goods but which are required to be aboard the aircraft in accordance with the pertinent airworthiness requirements and operating regulations, or for those specialized purposes identified in the Technical Instructions, shall be excepted from the provisions of this Annex.~~

Origin:	*Rationale:*
DGP/29	The SARP relates to the applicability of the Annex and the Technical Instructions. It is therefore proposed to move it to the applicability section of this chapter (2.2.3).

The following is moved to Chapter 6:

~~2.4.2 Where articles and substances intended as replacements for those described in 2.4.1 or which have been removed for replacement are carried on an aircraft, they shall be transported in accordance with the provisions of this Annex except as permitted in the Technical Instructions.~~

Origin:	*Rationale:*
DGP/29	This SARP is proposed to be captured in Chapter 6 — Operator Responsibilities. Chapter 6 is intended to outline the dangerous goods elements the State of the Operator needs to consider when authorizing an operator to conduct air transport operations. How an operator ensures that articles and substances classified as dangerous goods which are intended as replacements is one of those elements. Addressing this in Chapter 6 instead of this chapter allows for a comprehensive list of elements to be considered.

~~2.4.3 Specific articles and substances carried by passengers or crew members shall be excepted from the provisions of this Annex to the extent specified in the Technical Instructions.~~

Origin:	*Rationale:*
DGP/29	The exception for dangerous goods carried by passengers and crew is proposed for deletion because they are not excepted from the Annex. They are forbidden unless specifically permitted in the Technical Instructions, and there are criteria for allowing them there. A new SARP related to dangerous goods carried by passengers and crew is proposed for inclusion under Dangerous goods permitted for transport by air (see proposed 2.4.1) and a new chapter devoted to dangerous goods permitted for carriage by passengers and crew (Chapter 7).

The is moved to 3.2:

~~**2.5 Notification of variations from the Technical Instructions**~~

~~2.5.1 Where a Contracting State adopts different provisions from those specified in the Technical Instructions, it shall notify ICAO promptly of such State variations for publication in the Technical Instructions.~~

~~*Note. Contracting States are expected to notify a difference to the provisions of 2.2.1 under Article 38 of the Convention only if they are unable to accept the binding nature of the Technical Instructions. Where States have adopted different provisions from those specified in the Technical Instructions, they are expected to be reported only under the provisions of 2.5.*~~

Origin:	*Rationale:*
DGP/29	The requirement for States to inform ICAO of State variations is proposed to be moved to a new Chapter 3: Provision of information to ICAO. The new chapter is proposed so that all requirements related to providing ICAO with information is in one place.

~~2.5.2 **Recommendation.** *The State of the Operator should take the necessary measures to ensure that when an operator adopts more restrictive requirements than those specified in the Technical Instructions, the notification of such operator variations is made to ICAO for publication in the Technical Instructions.*~~

Origin:	*Rationale:*
DGP/29	Few operator variations are reported to ICAO, and updates to already reported variations are not always provided. Users of the Technical Instructions cannot depend on these variations. Operator variations are more reliably reported to industry and included in industry regulations. It is therefore proposed that the recommendation be deleted.

The following is moved to 2.3.1.3:

~~**2.6 Surface transport**~~

~~**Recommendation.** *States should make provisions to enable dangerous goods intended for air transport and prepared in accordance with the ICAO Technical Instructions to be accepted for surface transport to or from aerodromes.*~~

The following is moved to Chapter 4.1:

~~**2.7 National authority**~~

~~Each Contracting State shall designate and specify to ICAO an appropriate authority within its administration to be responsible for ensuring compliance with this Annex.~~

Origin:	*Rationale:*
DGP/29	The requirement for States to designate and specify to ICAO an appropriate authority within its administration to be responsible for ensuring compliance with this Annex is proposed to be moved to a new Chapter 3: Provision of information to ICAO. The new chapter is proposed so that all requirements related to providing ICAO with information is in one place.

— — — — — — — — — —

~~CHAPTER 3. CLASSIFICATION~~

~~The classification of an article or substance shall be in accordance with the provisions of the Technical Instructions.~~

~~*Note. The detailed definitions of the classes of dangerous goods are contained in the Technical Instructions. These classes identify the potential risks associated with the transport of dangerous goods by air and are those recommended by the United Nations Committee of Experts on the Transport of Dangerous Goods.*~~

Origin:	*Rationale:*
DGP/29	The intent of this Standard is to ensure anyone preparing a package containing dangerous goods for transport classifies the hazards associated with the dangerous goods in accordance with the Technical Instructions. However, the Standard does not make this clear nor does it make the obligation that the Standard places on a State clear. A new Chapter 5 on the safety of the supply chain is proposed which captures the intent and State obligation of this SARP and similar SARPs in current Chapters 5 (Packing), 6 (Labelling and marking) and 7 (Shipper's responsibilities).

CHAPTER 3. PROVISION OF INFORMATION TO ICAO

The following is moved from 2.7:

~~2.7~~3.1 National authority

Each ~~Contracting~~ State shall designate and specify to ICAO an appropriate national authority within its administration to be responsible for ensuring compliance with this Annex.

Origin:	*Rationale:*
DGP/29	a) Proposed to be moved from Chapter 2 to this chapter so that all SARPs related to providing information to ICAO are in one place. b) Some States have more than one authority responsible for ensuring compliance with this Annex, so "an appropriate authority" is replaced with "the authorities".

The following is moved from 2.5:

~~2.5~~3.2 Notification of variations from the Technical Instructions

~~2.5.1~~ Where a ~~Contracting~~ State adopts different provisions from those specified in the Technical Instructions, it shall notify ICAO promptly of such State variations for publication in the Technical Instructions.

Note.— Each ~~Contracting~~ State~~s are~~ is expected to notify a difference to the provisions of ~~2.2.1~~ 2.3.1 and 2.3.2 under Article 38 of the Convention only if they are unable to accept the binding nature of the Technical Instructions. Where States have adopted different provisions from those specified in the Technical Instructions, they are expected to be reported only under the provisions of ~~2.5~~ 3.2.

Origin:	*Rationale:*
DGP/29	Proposed to be moved from Chapter 2 to this chapter so that all SARPs related to providing information to ICAO are in one place.

3.3 Difficulties encountered in the application of the Technical Instructions

The following is moved from 2.2.2:

~~2.2.2~~ **Recommendation.—** *Each ~~Contracting~~ State should inform ICAO of difficulties encountered in the application of the Technical Instructions and of any amendments which it would be desirable to make to them.*

Origin:	*Rationale:*
DGP/29	a) Heading added to differentiate between other sections of this chapter b) Proposed to be moved from Chapter 2 to this chapter so that all SARPs related to providing information to ICAO are in one place.

~~CHAPTER 4. LIMITATION ON THE TRANSPORT OF DANGEROUS GOODS BY AIR~~

The following is moved to 2.4.1:

~~4.1 Dangerous goods permitted for transport by air~~

~~The transport of dangerous goods by air shall be forbidden except as established in this Annex and the detailed specifications and procedures provided in the Technical Instructions.~~

The following is moved to 2.4.2:

~~4.2 Dangerous goods forbidden for transport by air unless exempted~~

~~The dangerous goods described hereunder shall be forbidden on aircraft unless exempted by the States concerned under the provisions of 2.1 or unless the provisions of the Technical Instructions indicate they may be transported under an approval granted by the State of Origin:~~

~~a) dangerous goods that are identified in the Technical Instructions as being forbidden for transport in normal circumstances; and~~

~~b) infected live animals.~~

The following is moved to 2.4.3:

~~4.3 Dangerous goods forbidden for transport by air under any circumstances~~

~~Articles and substances that are specifically identified by name or by generic description in the Technical Instructions as being forbidden for transport by air under any circumstances shall not be carried on any aircraft.~~

Origin:	*Rationale:*
DGP/29	The SARPs currently in Chapter 4 for the limitation on the transport of dangerous goods are moved to Chapter 2 to keep the general regulatory framework for transport of dangerous goods by air in one place. It is proposed that Chapter 4 contain safety management provisions specific to dangerous goods.

CHAPTER 4. STATE SAFETY MANAGEMENT RESPONSIBILITIES

Origin:	*Rationale:*
DGP/29	A new chapter on State safety management responsibilities specific to dangerous goods is proposed with the aim of ensuring all entities involved with the safe transport of dangerous goods are working towards the level of safety expected in aviation. Having a common understanding of safety presents challenges unique to dangerous goods transport because of the many entities involved, including regulatory authorities and industries outside the aviation system. The chapter is intended to make the fact that transporting dangerous goods is an integral part of the State safety programme required by Annex 19 and to ensure activities necessary to achieve targeted levels of safety specific to dangerous goods that go beyond what Annex 19 requires are covered. The structure of the chapter is based on the components of an SSP so that there are four sections, one for each component.

Note 1.— The provisions for a State Safety Programme (SSP) contained in Chapter 3 to Annex 19 are applicable to this Annex. This chapter of Annex 18 contains specific State safety management responsibilities relevant to the safe transport of dangerous goods by air.

Note 2.— Guidance on an SSP is contained in the Safety Management Manual (SMM) *(Doc 9859).* Guidance on specific State safety management responsibilities relevant to the safe transport of dangerous goods by air is contained in *Doc xxxx (forthcoming).*

Origin:	*Rationale:*
DGP/29	Authorities involved with the safe transport of dangerous goods by air may not all be part of the aviation sector in some States. The notes are intended to ensure all are aware of the requirements for a State safety programme and the fact that the transport of dangerous goods by air is an integral part of it.

4.1 State safety policy, objectives and resources

Note 1.— See 5.1 for primary aviation legislation applicable to the safe transport of dangerous goods by air.

Note 2.— See 5.2 and 7.1 for specific operating regulations applicable to the safe transport of dangerous goods by air.

Origin:	*Rationale:*
DGP/29	SARPs related to primary aviation legislation and specific operator regulations specific to dangerous goods are proposed for inclusion in Chapter 5. References to these sections in Notes 1 and 2 are proposed for the sake of comprehensiveness.

Note 3.— Guidance on the establishment of authorities or government agencies supported by sufficient and qualified personnel and provided with adequate financial resources for the management of safety specific to dangerous goods is contained in Doc xxxx (forthcoming), Chapter yy.

Note 4.— Guidance on staffing, minimum qualification requirements and training for dangerous goods technical personnel involved in the regulation and oversight of transport of dangerous goods by air is contained in Doc xxxx (forthcoming), Chapter yyyy.

Note 5.— Guidance on coordination between appropriate national authorities that could have an impact on the transport of dangerous goods by air is contained in Doc xxxx (forthcoming), Chapter yyyy.

Origin:	*Rationale:*
DGP/29	The SSP elements highlighted by Notes 3 to 4 are covered by the existing SARPs in Annex 19, so there is no need for SARPs specific to dangerous goods. However, they highlight areas that have been identified as needing to be strengthened through safety oversight audits. The notes refer to guidance on how these elements apply to dangerous goods and how they can be established.

4.2 State safety risk management

4.2.1 Approval and exemption obligations

Each State shall implement documented processes and procedures to ensure that individuals and organizations performing an activity related to the transport of dangerous goods by air meet the established requirements before they are allowed to exercise the privileges of an approval or exemption to conduct the relevant dangerous goods activity.

Note.— Guidance on the establishment of documented processes and procedures related to the granting of exemption and approval obligations is contained in Doc xxxx (forthcoming), Chapter yyyy.

Origin:	*Rationale:*
DGP/29 DGP/27	This Standard is aimed at ensuring States meet their responsibilities with respect to the granting of exemptions and approvals related to the transport of dangerous goods by air. The DGP has identified a need for additional guidance on the issuance of approvals and exemptions, particularly with respect to which entities the approval or exemption should be issued to and the relationship between the shipper, the operator and the State authorities processing them. Ensuring each Contracting State has documented process and procedures and providing guidance to assist them in developing them will help ensure States meet their exemption and approval obligations under Critical element 6.

4.2.2 Safety management system obligations

Note 1.— The transport of dangerous goods by air is included in the scope of the operator's safety management system (SMS).

Note 2.— See Annex 6 — Operation of Aircraft, *Part I —* International Commercial Air Transport — Aeroplanes, *Chapter 15 and Part IV —* International Operations — Remotely Piloted Aircraft Systems, *Chapter 15 for SARPs concerning hazards associated with the transport of items in the cargo compartment, the conduct of a specific safety risk assessment, and the responsibilities for the transport of dangerous goods.*

Origin:	*Rationale:*
DGP/29 DGP/27	The notes are aimed at ensuring the State is aware how safety management system obligations apply to dangerous goods. A new SARP is unnecessary because Note 1 is a statement of fact and Note 2 is covered by the SARPs in Annex 6.

4.2.3 Dangerous goods safety investigations

Moved from 12.1 and 12.2:

~~12.1 With the aim of preventing the recurrence of dangerous goods accidents and incidents, each Contracting State shall establish procedures for investigating and compiling information concerning such accidents and incidents which occur in its territory and which involve the transport of dangerous goods originating in or destined for another State. Reports on such accidents and incidents shall be made in accordance with the detailed provisions of the Technical Instructions.~~

~~12.2 **Recommendation.** *With the aim of preventing the recurrence of dangerous goods accidents and incidents, each Contracting State should establish procedures for investigating and compiling information concerning such accidents and incidents which occur in its territory other than those described in 12.1. Reports on such accidents and incidents should be made in accordance with the detailed provisions of the Technical Instructions.*~~

4.2.3.1 Each State shall establish a process to investigate dangerous goods accidents and dangerous goods incidents reported in accordance with Chapter 10 in support of the management of safety in the State.

Origin:	*Rationale:*
DGP/29	This new Standard replaces the SARPs currently in 12.1 and 12.2 that require each Contracting State to establish procedures for investigating and compiling information concerning dangerous goods accidents and incidents which occur in its territory and involve the transport of dangerous goods originating or destined for another State and to report in accordance with the Technical Instructions and recommends the same when not originating or destined for another State. While accidents and incidents defined in accordance with Annex 13 apply to the operation of an aircraft, dangerous goods accidents and incidents defined in accordance with Annex 18 do not necessarily occur on board an aircraft. This SARP is intended to ensure that dangerous goods accidents or incidents that do not meet the criteria for accidents or incidents defined in Annex 13 are investigated. The investigation of an accident or incident that did not occur on board an aircraft is valuable because it may reveal safety deficiencies that need to be resolved to prevent another accident or incident and to prevent an incident from leading to an accident. The wording of the Standard is revised to: a) align with the wording in Annex 19; b) require the establishment of a process to conduct safety investigations for all accidents and incidents involving the transport of dangerous goods that are reported to the State regardless of where they occurred; c) remove the reference to compiling information because this is covered in new Chapter 10 which is proposed to contain provisions related to safety intelligence.

Moved from 12.3:

~~12.3 With the aim of preventing the recurrence of instances of undeclared or misdeclared dangerous goods in cargo, each Contracting State shall establish procedures for investigating and compiling information concerning such occurrences which occur in its territory and which involve the transport of dangerous goods originating in or destined for another State. Reports on such instances shall be made in accordance with the detailed provisions of the Technical Instructions.~~

~~12.4 **Recommendation.** *With the aim of preventing the recurrence of instances of undeclared or misdeclared dangerous goods in cargo, each Contracting State should establish procedures for investigating and compiling information concerning such occurrences which occur in its territory other than those described in 12.3. Reports on such instances should be made in accordance with the detailed provisions of the Technical Instructions.*~~

4.2.3.2 Each State shall implement a risk-based process for the investigation of:

a) occasions when undeclared or misdeclared dangerous goods are discovered in cargo or mail;

b) occasions when dangerous goods not permitted in passenger or crew baggage are discovered; and

c) other safety issues

which are reported in accordance with Chapter 10 in support of the management of safety in the State.

Origin:	*Rationale:*
DGP/29	This new Standard replaces the SARPs currently in 12.3 and 12.4 that require each Contracting State to establish procedures for investigating and compiling information concerning occurrences of undeclared or misdeclared dangerous in cargo which occur in its territory and involve the transport of dangerous goods originating or destined for another State and to report in accordance with the Technical Instructions and recommends the same when not originating or destined for another State. The new Standard is revised to: a) emphasize the need for the process to be risk-based; b) require the establishment of the risk-based process for all occurrences of undeclared dangerous goods involving the transport of dangerous goods that are reported to the State regardless of where they occurred; c) expand the requirement to dangerous goods discovered in passengers and crew baggage that are not permitted and to other safety issues. d) remove the reference to compiling information because this is covered in new Chapter 10 which is proposed to contain provisions related to safety intelligence. The expansion of the requirement to dangerous goods discovered in passengers and crew baggage is made to reflect a long-standing requirement in the Technical Instructions. Prohibited dangerous goods pose a safety risk if they are carried onboard aircraft by passengers and crew because they are either unaware of or deliberately ignore the requirements. Investigations should be conducted with the aim of reducing the likelihood of prohibited dangerous goods being carried by passengers and crew.

Moved from 11.2:

~~**Recommendation.**~~ 4.2.3.3 Each ~~Contracting~~ State ~~should~~ shall participate in cooperative efforts with other States ~~concerning~~ conducting dangerous goods safety investigations, as appropriate, with the aim of resolving safety issues and eliminating violations of dangerous goods regulations~~, with the aim of eliminating such violations. Cooperative efforts could include coordination of investigations and enforcement actions; exchanging information on a regulated party's compliance history; joint inspections and other technical liaisons, exchange of technical staff, and joint meetings and conferences. Appropriate information that could be exchanged include safety alerts, bulletins or dangerous goods advisories; proposed and completed regulatory actions; incident reports; documentary and other evidence developed in the investigation of incidents; proposed and final enforcement actions; and educational/outreach materials suitable for public dissemination~~.

Note 1.— See 10.4 for requirements related to the exchange of information.

Note 2.— Guidance on dangerous goods safety investigations can be found in Doc xxxx (forthcoming), Chapter yy.

Origin:	*Rationale:*
DGP/29	Revised to expand beyond violations of dangerous goods regulations to include any safety issue. The cooperation of States when conducting safety investigations of an international nature is critical for the resolution of dangerous goods safety issues. The recommendation is therefore upgraded to a SARP. The text proposed for deletion is not a Standard or a Recommended Practice, but it is helpful so it will be incorporated in the new guidance document to support implementation of Annex 18.

4.2.4 Hazard identification and safety risk assessment

4.2.4.1 Each State shall establish and maintain a process to identify the State's system-level hazards associated with the transport of dangerous goods by air from collected safety data.

4.2.4.2 Each State shall develop and maintain a process that ensures the assessment of safety risks associated with hazards identified under 4.2.4.1.

Origin:	*Rationale:*
DGP/29	See rationale under 4.2.5.

4.2.5 Management of safety risks

4.2.5.1 Dangerous goods transported as cargo or mail

4.2.5.1.1 Each State shall ensure that the mechanism for the resolution of safety issues required by Annex 19 addresses safety risks associated with dangerous goods offered, handled or transported or caused to be offered, handled or transported as cargo or mail by air.

4.2.5.1.2 Each State shall implement measures aimed at preventing dangerous goods not in compliance with the Technical Instructions from being transported in cargo or mail.

4.2.5.1.3 Each State shall implement measures aimed at ensuring that any entity that offers, handles or transports or causes to be offered, handled or transported dangerous goods in cargo or mail has processes and procedures in place to identify dangerous goods in cargo or mail that are not in compliance with the Technical Instructions and to prevent them from being offered for transport by air or loaded on an aircraft.

4.2.5.2 Dangerous goods carried by passengers or crew

4.2.5.2.1 Each State shall ensure that the mechanism for the resolution of safety issues required by Annex 19 addresses safety risks associated with dangerous goods carried by passengers and crew members.

4.2.5.2.2 Each State shall implement measures aimed at preventing passengers and crew members from carrying dangerous goods on board an aircraft which they are not permitted to carry.

4.2.5.2.3 Each State shall implement measures aimed at ensuring that entities handling baggage have processes and procedures in place to recognize dangerous goods not permitted to be carried by passengers and crew members and to prevent them from being carried on an aircraft when they are discovered.

Note.—. Guidance on managing safety risks associated with dangerous goods is contained in Docs 10102 and Doc xxxx (forthcoming), Chapter yyyy.

Origin:	*Rationale:*
DGP/29	Annex 19 requires that States establish and maintain processes for hazard identification, assessing safety risks and managing safety risks. Hazards introduced throughout the supply chain may pose significant safety risks to aviation. Annex 6 obligates the operator to consider the supply chain in its safety risk management activities. Supply chains impact multiple operators. It is therefore important for the State to assess system-wide hazards and manage system-wide safety risks the aim of improving system-wide safety.

4.3 State safety assurance

Moved from 11.1:

~~**11.1 Inspection systems**~~

~~Each Contracting State shall establish inspection, surveillance and enforcement procedures for all entities performing any function prescribed in its regulations for air transport of dangerous goods with a view to achieving compliance with those regulations.~~

~~*Note 1. It is envisaged that these procedures would include provisions for:*~~

~~*inspecting dangerous goods consignments prepared, offered, accepted or transported by the entities referred to in 11.1;*~~

~~*inspecting the practices of the entities referred to in 11.1; and*~~

~~*investigating alleged violations (see 11.3).*~~

~~*Note 2. Guidance on dangerous goods inspections and enforcement may be found in the Supplement to the Technical Instructions (Part S-5, Chapter 1 and Part S-7, Chapters 5 and 6).*~~

Note.— Guidance on surveillance obligations and State safety performance required by Annex 19 specific to dangerous goods is contained in Doc xxxx (forthcoming), Chapter yyyy.

Origin:	*Rationale:*
DGP/29	The current Standard in 11.1 requires inspection, surveillance and enforcement procedures for all entities performing any dangerous goods function prescribed in a State's regulations. Requiring surveillance activities for all these entities is impossible to implement given the vast numbers performing dangerous goods functions and the fact that licence, certification, authorization or approval obligations do not apply to entities other than operators and designated postal operators. Inspection and enforcement procedures are covered by the SARPs for State safety risk management. The note provides guidance which will be incorporated in the new guidance manual. It will be aimed at ensuring the State is aware how Annex 19 surveillance obligations apply to dangerous goods.

4.4 State safety promotion

4.4.1 Dangerous goods transported as cargo or mail

4.4.1.1 Each State shall include activities aimed at preventing the transport of dangerous goods in cargo and mail by air which are not in compliance with the provisions of this Annex and the Technical Instructions in the State safety promotion activities required by Annex 19.

4.4.2 Dangerous goods carried by passengers or crew

4.4.2.1 Each State shall include activities aimed at preventing passengers and crew from carrying dangerous goods which they are forbidden to carry on an aircraft in the State safety promotion activities required by Annex 19.

Note.— See Part 8 of the Technical Instructions for dangerous goods carried by passengers and crew members.

4.4.3 Each ~~Contracting~~ State shall establish ~~measures~~ means to ~~improve~~ promote dangerous goods safety ~~awareness~~ and ~~promote~~ a positive safety culture throughout the supply chain.

Note.— Guidance related to State safety promotion and a positive safety culture specific to the safe transport of dangerous goods by air is contained in Doc xxxx (forthcoming), Chapter yyy.

Origin:	*Rationale:*
DGP/29	State safety promotion specific to dangerous goods is needed for the same reasons it is needed in other aviation sectors. The new SARPs are needed because State safety promotion needs to extend beyond the aviation system. This is essential to the management of safety risks associated with the transport of dangerous goods, particularly the risk of non-compliance with dangerous goods regulations.

~~CHAPTER 5. PACKING~~

~~5.1 General requirements~~

~~Dangerous goods shall be packed in accordance with the provisions of this chapter and as provided for in the Technical Instructions.~~

~~5.2 Packagings~~

~~5.2.1 Packagings used for the transport of dangerous goods by air shall be of good quality and shall be constructed and securely closed so as to prevent leakage which might be caused in normal conditions of transport, by changes in temperature, humidity or pressure, or by vibration.~~

~~5.2.2 Packagings shall be suitable for the contents. Packagings in direct contact with dangerous goods shall be resistant to any chemical or other action of such goods.~~

~~5.2.3 Packagings shall meet the material and construction specifications in the Technical Instructions.~~

~~5.2.4 Packagings shall be tested in accordance with the provisions of the Technical Instructions.~~

~~5.2.5 Packagings for which retention of a liquid is a basic function, shall be capable of withstanding, without leaking, the pressure stated in the Technical Instructions.~~

~~5.2.6 Inner packagings shall be so packed, secured or cushioned as to prevent their breakage or leakage and to control their movement within the outer packaging(s) during normal conditions of air transport. Cushioning and absorbent materials shall not react dangerously with the contents of the packagings.~~

~~5.2.7 No packaging shall be reused until it has been inspected and found free from corrosion or other damage. Where a packaging is reused, all necessary measures shall be taken to prevent contamination of subsequent contents.~~

~~5.2.8 If, because of the nature of their former contents, uncleaned empty packagings may present a hazard, they shall be tightly closed and treated according to the hazard they constitute.~~

~~5.2.9 No harmful quantity of a dangerous substance shall adhere to the outside of packages.~~

Origin:	*Rationale:*
DGP/29	The provisions in this chapter are details contained in the Technical Instructions. The SARPs are therefore redundant. Packing requirements are now covered more generally by the SARP proposed in new Chapter 5, 5.2.1 b) 3).

Origin:	*Rationale:*
DGP/29	A new chapter on the safety of the supply chain is proposed to more clearly outline the expectations of States. Current Annex 18 has three separate chapters that address responsibilities of entities involved with preparing and offering dangerous goods for transport. These are: Chapter 3 – Classification; Chapter 5 – Packing; Chapter 6 – Labelling and marking; and Chapter 7 – Shipper's responsibilities. All of them point to the provisions of the Technical Instructions, with some provisions from the Technical Instructions repeated in the Annex. They do not directly state what is required of the State, and there does not appear to be any rationale for determining what should be repeated and what should simply be referred to. This new chapter clearly defines what is expected of the State, which is to adopt regulations directed at entities in the supply chain preparing, offering and transporting dangerous goods for transport by air. The new chapter lists the functions for which regulations are needed and refers to the applicable parts of the Technical Instructions where the detailed Instructions are found. Listing the functions provides the added benefit of an overview of how the Technical Instructions mitigate risk.

CHAPTER 5. SAFETY OF THE SUPPLY CHAIN

5.1 Primary aviation legislation (CE 1)

Each State shall promulgate laws that enable the oversight and safety management of entities that offer, handle, transport or cause to be offered, handled or transported dangerous goods by air, the resolution of safety issues and the enforcement of regulations through the relevant authorities established for that purpose.

5.2 Specific operating regulations

Each State shall establish specific operating regulations in accordance with Annex 19 to require, at a minimum, that:

a) a person does not offer or cause to be offered for transport:

1) articles or substances which are forbidden for transport in accordance with 2.4.3;

2) articles or substances which are forbidden for transport in accordance with 2.4.2 unless permitted by the States concerned through an approval or exemption;

Origin:	*Rationale:*
DGP/29	4.1.2 a) and b) replaces part of current 7.1.

b) a person does not offer or cause to be offered dangerous goods for transport unless:

1) policies and procedures have been developed and provided to enable them to carry out the function for which they are responsible;

2) associated hazards are identified in accordance with the classification criteria of Part 2 of the Technical Instructions;

Origin:	*Rationale:*
DGP/29	4.1.2 b) 2) replaces current Chapter 3

3) risks associated with the identified hazards are mitigated at the package level through quantity limitations, packing and packaging requirements in accordance with Parts 3, 4 and 6 of the Technical Instructions;

Origin:	*Rationale:*
DGP/29	4.1.2 b)3 Replaces part of current 7.1 (Shippers' responsibilities — general requirements) and Chapter 5 (Packing).

4) hazard and handling information are communicated to entities in the supply chain in accordance with the marking, labelling and documentation requirements of Parts 3, 4 and 5 of the Technical Instructions;

Origin:	*Rationale:*
DGP/29	4.1.2 b) 4) replaces Chapter 6 (Labelling and Marking) and 7.2 (Dangerous goods transport document).

5) documentation is retained in accordance with the Technical Instructions;

Origin:	*Rationale:*
DGP/29	The need for documentation to be retained is required by the detailed provisions of the Technical Instructions. The documentation is evidence of compliance and provides important information for safety investigations.

6) in the case of radioactive material, a radiation protection programme is established in accordance with Part 1;6 of the Technical Instructions;

Origin:	*Rationale:*
DGP/29	The Technical Instructions contain provisions for a radiation protection programme by entities involved with the transport of radioactive material. There was never any reference to this in Annex.

c) operators accept, handle and transport dangerous goods in accordance with Chapter 6;

d) dangerous goods accidents, dangerous goods incidents and occasions when undeclared or misdeclared dangerous goods are discovered are reported in accordance with Chapter 10;

e) training and assessment is conducted in accordance with Chapter 9;

f) dangerous goods are not offered, caused to be offered or accepted for transport by mail unless specifically permitted in accordance with Chapter 8; and

Origin:	*Rationale:*
DGP/29	5.2.1 c), d), e) and f) establish the need for the State to adopt regulations aimed at the operator, reporting, training and assessment and the mail. They refer to the associated SARPs in the Annex.

g) entities other than operators involved in the transport of dangerous goods by air provide such information to their personnel as will enable them to carry out their responsibilities with regard to the transport of dangerous goods and instructions as to the action to be taken in the event of emergency involving dangerous goods.

Note.— Annex 6 contains requirements for the operator to be provided with an operations manual for the use and guidance of operations personnel concerned.

Origin:	*Rationale:*
	5.2.1 g) is moved from 9.4. The text in 9.4 is modified to make it applicable to entities other than the operator, given that the operator is required to provide the information and instructions in the Operators Manual in accordance with Annex 6 and is now proposed to be covered to be SARPs in Chapter 6. This is reflected through the note under g).

_____

~~CHAPTER 6. LABELLING AND MARKING~~

~~6.1 Labels~~

~~Unless otherwise provided for in the Technical Instructions, each package of dangerous goods shall be labelled with the appropriate labels and in accordance with the provisions set forth in those Instructions.~~

~~6.2 Markings~~

~~6.2.1 Unless otherwise provided for in the Technical Instructions, each package of dangerous goods shall be marked with the proper shipping name of its contents and, when assigned, the UN number and such other markings as may be specified in those Instructions.~~

~~6.2.2 *Specification markings on packagings.* Unless otherwise provided for in the Technical Instructions, each packaging manufactured to a specification contained in those Instructions shall be so marked in accordance with the appropriate provisions of those Instructions and no packaging shall be marked with a packaging specification marking unless it meets the appropriate packaging specification contained in those Instructions.~~

~~6.3 Languages to be used for markings~~

~~**Recommendation.** *In addition to the languages required by the State of Origin and pending the development and adoption of a more suitable form of expression for universal use, English should be used for the markings related to dangerous goods.*~~

Origin:	*Rationale:*
DGP/29	The provisions in this chapter are details contained in the Technical Instructions. The SARPs are therefore redundant. Labelling and marking requirements are now covered more generally by the SARP proposed in new Chapter 5, 5.2.1 b) 4).

Origin:	*Rationale:*
DGP/29	This rational applies to all of newly-numbered Chapter 6 (Operator's responsibilities): — A change in the structure of the chapter is proposed to differentiate between operators with and without specific approvals to transport dangerous goods as cargo in alignment with the structure of the dangerous goods chapters in Annex 6 (Chapters 14 in Parts I and IV and Chapter 12 in Part II). This makes the responsibilities applicable to each type of operator clear and establishes a stronger connection with Annex 6. — The SARPs for the operator responsibilities have been expanded to ensure all the detailed provisions in the Technical Instructions are connected to a high-level Standard in the Annex so as to provide more visibility to States enabling them to better assess an operator's ability to perform dangerous goods functions through the AOC process and during surveillance activities. — Editorial amendments to existing SARPs are made to make the subject of the SARP clear and to align with language used in Annex 6 (i.e. "The operator shall …").

Moved from Chapter 8:

CHAPTER ~~8~~ 6. OPERATOR'S RESPONSIBILITIES

Note 1.— Annex 6, Parts I, III and IV prohibit an operator from engaging in commercial air transport operations unless it is in possession of a valid air operator certificate (AOC) issued by the State of the Operator. The AOC authorizes the operator to conduct commercial air transport operations in accordance with its operations specifications. The operations specifications include an indication of whether an operator has specific approval to transport dangerous goods as cargo. This Annex applies to all operators, regardless of their specific approval status. Operators that have a specific approval to transport dangerous goods as cargo are subject to additional operational responsibilities that do not apply to operators without specific approval. This chapter distinguishes responsibilities for operators without specific approval from those with specific approval to transport dangerous goods as cargo by separating them into two sections (6.1 and 6.2).

Note 2.— Annex 6, Part I, Chapter 14, Annex 6, Part III, Chapter 12 and Annex 6, Part IV, Chapter 14 includes provisions for air operators to include dangerous goods procedures, instructions and guidance in its operations manual.

Note ~~1~~ 3.— Annex 19 includes safety management provisions for air operators. Further guidance is contained in the Safety Management Manual (SMM) *(Doc 9859).*

Note ~~2~~ 4.— The carriage of dangerous goods is included in the scope of the operator's safety management system (SMS).

Note 4 is moved from under 2.1.4:

Note 5.— It is not intended that this Annex be interpreted as requiring an operator to transport a particular article or substance or as preventing an operator from adopting special requirements on the transport of a particular article or substance.

Note 6.— The operator may contract functions required by this Annex to another party while retaining overall responsibility for them.

Note 6.— Each State is required to recognize as valid an air operator certificate issued by another State in accordance with Annex 6, Part I, 4.2.2, Part III — International Operations — Helicopters, of 2.2.2 and Part IV, 4.2.3. This includes the specific approval to transport dangerous goods as cargo issued by another State.

Origin:	*Rationale:*
DGP/29	Note 1 establishes a link to Annex 6 and makes it clear that all operators have dangerous goods responsibilities, commensurate with the scope of operations. Note 4 is moved from Chapter 2: Applicability. The note is currently under the provisions for approvals and exemptions, but its application goes beyond these. Moving the note to this chapter makes the provisions for operators more comprehensive. Note 5 is based on a note in the Introductory notes to Part 7 of the Technical Instructions. It is proposed for inclusion in the Annex to ensure States are aware. The wording has been modified from what is in the Technical Instructions to make it clear that the operator retains overall responsibility. A consequential amendment to the Technical Instructions will be necessary. Note 6 is a modified version of current Note 2 under 10.2.3. It is modified to clarify its intent, which is to address issues with States subjecting training programmes of foreign operators to their approval. This is considered onerous and can create conflicts if conditions of the approval differ from the approval by the State of the Operator. It is proposed for inclusion in this chapter because it applies to more than training.

6.1 General

6.1.1 The provisions of 6.2 are only applicable to operators with no specific approval for the transport of dangerous goods as cargo.

6.1.2 The provisions of 6.3 are only applicable to operators with a specific approval for the transport of dangerous goods as cargo.

Origin:	*Rationale:*
DGP/29	6.1.1 and 6.1.2 set out the applicability of the two remaining sections in this chapter, one for operators without specific approval to transport dangerous goods as cargo and one with specific approval. The two sections correspond with the two sections in Annex 6, Chapter 14. DGP proposes to maintain the dangerous goods provisions in Annex 18 and to replace what is in Annex 6 with references to the sections in this Annex. Keeping the dangerous goods SARPs in Annex 18 allows for a comprehensive set of dangerous goods provisions and facilitates maintenance of them. DGP proposes repeating provisions that apply to both types of operators in 6.2 and 6.3 as is done in Annex 6. This eliminates any ambiguity as to what each operator is responsible for, which is sometimes the case for operators without specific approval.

6.2 Operators with no specific approval for the transport of dangerous goods as cargo

Origin:	*Rationale:*
DGP/29	6.2 is a proposed new section specific to operators with no specific approval for the transport of dangerous goods as cargo. It is added with the aim of making dangerous goods responsibilities for these operators clear (see rationale under 6.1.3).

6.2.1 General

The operator shall not transport dangerous goods as cargo.

Origin:	*Rationale:*
DGP/29	Despite efforts to prevent operators without specific approval to transport dangerous goods as cargo from transporting them, dangerous goods are still discovered in cargo of operators, often COMAT, without approval. This Standard makes it clear up front that operators without a specific approval cannot transport dangerous goods as cargo.

6.2.2 Acceptance and loading of dangerous goods carried by passengers and crew requiring approval

The operator shall implement documented processes and procedures for accepting and transporting dangerous goods, only permitted for carriage by passengers and crew if approved by the operator, in accordance with Parts 7 and 8 of the Technical Instructions.

Origin:	*Rationale:*
DGP/29	6.2.2 is a proposed new SARP for both types of operators (see also 6.3.2). Some dangerous goods are only permitted for carriage by passengers and crew with the approval of the operator as specified in Table 8-1 of the Technical Instructions (e.g. battery-powered mobility aids, oxygen cylinders required for medical use, dry ice). There are specific handling and loading requirements for the operator for some of them. Including this general SARP in the Annex is proposed to make it clear to States that the operator needs to demonstrate it can carry these goods safely.

6.2.3 Damage or leakage

The operator or an appropriate authority or organization shall remove cargo, mail or baggage suspected of containing dangerous goods from the aircraft or unit load device if it appears to be damaged or leaking in accordance with Part 7;3 of the Technical Instructions.

Origin:	Rationale:
DGP/29	This requirement is contained in current 8.4.3, but 8.4.3 applies only to packages of dangerous goods appearing to be damaged or leaking. It does not address leakage of dangerous goods from baggage or mail and implies that the operator would know that a package contained dangerous goods. The operator would only know if a package contained dangerous goods if it was declared as such. The SARP in 8.4.3 is therefore proposed to be amended to ensure it addresses contamination from declared and undeclared dangerous goods, dangerous goods in mail, and dangerous goods carried by passengers and crew.

6.2.4 Prevention of non-compliance

6.2.4.1 The operator shall ensure that measures are in place to mitigate against the risk of:

a) dangerous goods being transported as cargo on an aircraft;

b) dangerous goods being transported which are intended as replacement for or removed for replacement of those required to be aboard an aircraft in accordance with pertinent airworthiness requirements and operator regulations;

c) dangerous goods being transported in air mail which are not in compliance with the Technical Instructions; and

d) passengers and crew carrying dangerous goods on board an aircraft which they are not permitted to carry.

6.2.4.2 The mitigations required by 6.2.4.1 shall include, at a minimum:

a) measures aimed at ensuring cargo customers are aware of the limitations on the transport of dangerous goods as cargo by air;

b) measures aimed at ensuring passengers and crew are aware of the limitations on the carriage of dangerous goods by air; and

c) measures aimed at assisting operators' acceptance staff in identifying, detecting and rejecting dangerous goods presented as general cargo.

Note 1.— See 2.4 for limitations on the transport of dangerous goods by air.

Note 2.— See Part 7;4.8 of the Technical Instructions for provision of information at cargo acceptance points and Part 7;5 of the Technical Instructions for provision of information to passengers and for passenger check-in procedures.

Note 3.— See Part 7;1.1 of the Technical Instructions for cargo acceptance procedures related to detecting dangerous goods presented as general cargo.

Note 4.— See Part 7;6 of the Technical Instructions for provisions to aid recognition of dangerous goods in general cargo, baggage or mail.

Origin: DGP/29	Rationale: 6.2.4 is a proposed new SARP aimed at mitigating against the risk of: a) an operator without specific approval to transport dangerous goods as cargo transporting dangerous goods as cargo on an aircraft when they do not have State approval to do so (either knowingly, when dangerous goods are declared as such, or unknowingly when they are not); b) dangerous goods in baggage or mail being transported on an aircraft that are not in compliance with the Technical Instructions. The inadvertent transport of undeclared dangerous goods offered as general cargo, dangerous goods in air mail that are not permitted, and dangerous goods carried by passengers and crew that are not permitted pose a risk to aircraft. The Technical Instructions currently contain several prescriptive requirements for information concerning dangerous goods to be provided to various entities that may introduce this risk as one way to mitigate it. These are referred to in the Notes proposed for inclusion under 6.2.6.2. The proposed new SARP is intended to make the need to mitigate the risk clear while not limiting measures to what is provided in Technical Instructions. It aims to ensure operators implement effective measures for their specific operating environment while incorporating the existing measures in the Technical Instructions in a manner that focuses on what needs to be achieved.

6.2.5 Emergency procedures

The operator shall provide instructions to crew members and other personnel involved in the transport of cargo, baggage or mail as to the action to be taken in the event of an emergency involving dangerous goods.

Origin: DGP/29	Rationale: 6.2.7 is based on current 9.2 and 9.4. It applies to both types of operators, i.e. those with and those without specific approval for dangerous goods transport (see 6.10.1). Current 9.2 applies to flight crew and 9.4 applies to operators, shippers and other organizations involved in the transport of dangerous goods. It is proposed to separate the requirement for shippers and other organizations from the operator given the specific requirement for the operator to include the information in the Operations Manual. Other entities are proposed for inclusion in new Chapter 5 on the safety of the supply chain (see 5.2 g).

6.2.6 Reporting of dangerous goods occurrences to State authorities

Note.— See Chapter 10 for requirements for the operator to report dangerous goods occurrences to State authorities.

Origin: DGP-WG/Annex 18	Rationale: It is proposed to add a note to the reporting requirements in Chapter 10 to ensure comprehensive provisions for the operator within this chapter

6.3 Operators with a specific approval for the transport of dangerous goods as cargo

6.3.1 General

The operator shall take measures to ensure that all personnel, including third-party personnel, involved in the acceptance, handling, loading and unloading of cargo are operating within the limits established by its specific approval to transport dangerous goods as cargo.

Origin:	*Rationale:*
DGP-WG/Annex 18	6.3.1 is aimed at replacing the details in Annex 6, 14.3 (see rationale under 6.1.3 and proposed consequential amendment to Annex 6 in Appendix B to this working paper). A similar SARP is added to 6.2.1. 6.3.1.1 and 6.3.1.2 are proposed to replace the details in Annex 6, Part I, 14.3 and 14.4 and the corresponding SARPs in Parts III and IV (see rationale under 6.1.3 and proposed consequential amendment to Annex 6 in Appendix B to this working paper).Similar SARPs are added to 6.2.1.1 and 6.2.1.2 to replace 14.2 and 14.4 of Annex 6, Part I and the corresponding SARPs in Parts III and IV.

6.3.2 Acceptance and loading of dangerous goods carried by passengers and crew requiring approval

The operator shall implement documented processes and procedures for accepting and transporting dangerous goods only permitted for carriage by passengers and crew if approved by the operator, in accordance with Parts 7 and 8 of the Technical Instructions.

Origin:	*Rationale:*
DGP-WG/Annex 18	6.3.2 is a proposed new SARP for both types of operators (see also 6.2.2). Some dangerous goods are only permitted for carriage by passengers and crew with the approval of the operator as specified in Table 8-1 of the Technical Instructions (e.g. battery-powered mobility aids, oxygen cylinders required for medical use, dry ice). There are specific handling and loading requirements for the operator for some of them. Including this general SARP in the Annex is proposed to make it clear to States that the operator needs to demonstrate it can carry these goods safely.

~~8.1~~6.3.3 Acceptance of dangerous goods for transport as cargo

6.3.3.1 ~~An~~The operator shall not accept dangerous goods for transport as cargo by air:

a) unless information is provided in accordance with Part 7;1.2 of the Technical Instructions describing the dangerous goods ~~are accompanied by a completed dangerous goods transport document~~ in the consignment, except where the Technical Instructions indicate that such ~~a document~~ information is not required; and

b) until the package, overpack or freight container containing the dangerous goods has been inspected in accordance with the acceptance procedures contained in Part 7;1 of the Technical Instructions.

~~*Note 1. — See Chapter 12 concerning the reporting of dangerous goods accidents and incidents.*~~

~~*Note 2. — Special provisions relating to the acceptance of overpacks are contained in the Technical Instructions.*~~

~~**8.2 Acceptance checklist**~~

6.3.3.2 ~~An~~The operator shall ~~develop and~~ use an acceptance checklist as an aid to compliance with the provisions of ~~8.1~~ 6.3.3.1 in accordance with Part 7;1.3 of the Technical Instructions.

6.3.3.3 The operator shall not accept a freight container or unit load device containing dangerous goods from a shipper except as permitted by 7;1 of the Technical Instructions.

Origin:	*Rationale:*
DGP/29	"As cargo" is added to reflect the fact that these acceptance procedures apply only to dangerous goods offered for transport as cargo. Sub-paragraph a) is modified to accommodate dangerous goods information provided electronically, which the Technical Instructions allow. Note 1 is deleted to remove the implication that the reporting of dangerous goods accidents and incidents is only applicable during acceptance. Note 2 is deleted as it is considered unnecessary. "Overpack" is referenced in 6.3.3.1, making it clear that there are provisions for them in the Technical Instructions. A separate section for the acceptance checklist is considered unnecessary since it is directly related to the provisions in the previous section. It is therefore proposed to delete the heading in 8.2.

6.3.4 Handling

6.3.3.1 The operator shall handle cargo containing dangerous goods in a manner that prevents damage, leakage or dangerous reaction in accordance with the provisions of the Technical Instructions.

6.3.3.2 The operator shall ensure that marks and labels required by the Instructions are visible throughout the course of air transport in accordance with Part 7;2 of the Technical Instructions.

6.3.3.3 The operator shall ensure that dangerous goods contained in unit load devices are identified on the exterior of the unit load devices in accordance with Part 7;2 of the Technical Instructions.

Origin:	*Rationale:*
DGP-WG/Annex 18	How dangerous goods are handled contributes to their safe transport. The Technical Instructions contain provisions related to handling, yet there is no mention of this function in Annex 18. SARPs related to handling are proposed to address this gap in Annex 18.

8.36.3.5 Loading, unloading and stowage

~~Packages and overpacks containing dangerous goods and freight containers containing radioactive materials shall be loaded and stowed on an aircraft in accordance with the provisions of the Technical Instructions.~~

8.46.3.5.1 ~~*Inspection for d*~~*Damage or leakage*

8.4.16.3.5.1.1 The operator shall not load dangerous goods as cargo onto an aircraft unless:

a) ~~P~~packages ~~and~~, overpacks ~~containing dangerous goods~~ and freight containers containing ~~radioactive materials shall be~~ dangerous goods have been inspected ~~for~~ immediately prior to placing them in a unit load device or loading them on an aircraft and found free from any evidence of leakage or damage ~~before loading on an aircraft or into a unit load device. Leaking or damaged packages, overpacks or freight containers shall not be loaded on an aircraft.~~; and

8.4.2 b) ~~A~~ unit load device~~s shall not be loaded aboard an aircraft unless the device has~~ have been inspected and found free from any evidence of leakage from, or damage to, any dangerous goods contained therein.

Proposed to reverse the following two paragraphs:

8.4.46.3.5.1.2 The operator shall inspect ~~P~~packages ~~or~~, overpacks ~~containing dangerous goods~~ and freight containers containing ~~radioactive materials shall be inspected~~ dangerous goods for ~~signs~~ evidence of damage or leakage upon unloading from the aircraft or unit load device. ~~If evidence of damage or leakage is found, the area where the dangerous goods or unit load device were stowed on the aircraft shall be inspected for damage or contamination.~~

8.4.36.3.5.1.3 ~~Where any package of dangerous goods loaded on an aircraft appears to be damaged or leaking, the operator shall remove such package from the aircraft, or arrange for its removal by an appropriate authority or organization, and thereafter shall ensure that the remainder of the consignment is in a proper condition for transport by air and that no other package has been contaminated~~The operator or an appropriate authority or organization shall remove cargo, mail or baggage containing or suspected of containing dangerous goods from the aircraft or unit load device if there is evidence of damage or leakage in accordance with Parts 7;2 and 7;3 of the Technical Instructions.

Origin:	*Rationale:*
DGP/29	"Inspection" is removed from the heading since the discovery of damage or leakage is not limited to inspections. The structure of the section is modified and reordered more logically to more clearly delineate inspections for damage or leakage during loading from inspections during unloading and the action that needs to be taken whenever damage or leakage is discovered. Text is struck out from existing 8.4.4 because the proposed text refers to more detailed provisions in the Technical Instructions making this redundant. Existing 8.4.3 applies only to packages of dangerous goods appearing to be damaged or leaking. It does not address leakage of dangerous goods from baggage or mail and implies that the operator would know that a package contained dangerous goods. The operator would only know if a package contained dangerous goods if it was declared as such. The SARP in 8.4.3 is therefore proposed to be amended to ensure it addresses contamination from declared and undeclared dangerous goods, dangerous goods in mail, and dangerous goods carried by passengers and crew. Editorial amendments are made for the sake of consistent language. A distinction between packages and overpacks containing dangerous goods and freight containers containing radioactive material was removed by simply stating "packages, overpacks and freight containers containing dangerous goods" since radioactive material is dangerous goods. The fact that freight containers can only contain radioactive material when shipping dangerous goods is not relevant to this section.

Proposed to reverse the following two paragraphs for a more logical flow (i.e. removal of contamination should follow damage and leakage):

~~8.6~~6.3.5.2 *Removal of contamination*

~~8.6.1~~ The operator shall ensure that:

a) ~~A~~any hazardous contamination found on an aircraft ~~as a result of leakage or damage to~~ from dangerous goods ~~shall be~~ is removed without delay in accordance with the Technical Instructions.

~~8.6.2~~ b) ~~A~~an aircraft which has been contaminated by radioactive materials ~~shall~~ is immediately ~~be~~ taken out of service and not returned to service until the radiation level at any accessible surface and the non-fixed contamination are not more than the values specified in the Technical Instructions.

Origin:	*Rationale:*
DGP/29	Editorial amendments to remove superfluous wording and improve clarity.

8.56.3.5.3 *Loading restrictions in passenger cabin or on flight deck*

The operator shall ensure that Ddangerous goods shall are not be carried in an aircraft cabin occupied by passengers or on the flight deck of an aircraft, except in circumstances permitted by the provisions of the Technical Instructions.

8.76.3.5. 4E*Separation and segregation*

8.7.16.3.5.4.1 The operator shall ensure that Ppackages containing dangerous goods which might react dangerously with one with another shall are not be stowed on an aircraft next to each other or in a position that would allow interaction between them in the event of leakage segregated or separated from each other, as applicable, in accordance with Part 7;2.2 of the Technical Instructions.

8.7.2 Packages of toxic and infectious substances shall be stowed on an aircraft in accordance with the provisions of the Technical Instructions.

8.7.36.3.5.4.2 The operator shall ensure that Ppackages of radioactive materials shall be are stowed on an aircraft so that they are separated from persons, live animals and undeveloped film, in accordance with the provisions in Part 7;2.9.6 of the Technical Instructions.

Origin:	*Rationale:*
DGP-WG/Annex 18 and DGP/26 AN Min. 209-2	There are details in the Technical Instructions specific to types of dangerous goods that must be separated or segregated from each other based on the hazards they pose than what is stated in current 8.7.1. It is proposed to make the Standard more general and to refer to the detailed provisions in the Technical Instructions while maintaining the intent of the Standard. The Standard in 8.7.2 is no longer necessary as it refers to detailed segregation requirements in the Technical Instructions which no longer exist. Segregation requirements for toxic and infectious substances were removed from the 2015-2016 Edition of the Technical Instructions (see paragraph 2.7.1.1 of the DGP/24 Report). The ANC conducted a final review of the amendment following State consultation. It was pointed out, and recognized by the Commission, that the amendment proposal was administrative in nature and, as such, should be consolidated with other Annex 18 amendment proposals which could imply a later applicability date than the currently indicated 7 November 2019. (AN Min 209-2). Editorial amendments to 8.7.3 are proposed.

8.86.3.5.5 *Securing of dangerous goods cargo loads*

6.3.5.5.1 When dangerous goods subject to the provisions contained herein are loaded in an aircraft, tThe operator shall protect the dangerous goods on the aircraft or in a unit load device from being damaged, and shall secure such goods in the aircraft in such a manner that will prevent any movement in flight which would change the orientation of the packages.

6.3.5.5.2 For packages containing radioactive materials, the securing shall be adequate to ensure that the separation requirements of ~~8.7.3~~ 6.3.4.4.2 are met at all times.

Origin:	*Rationale:*
DGP-WG/Annex 18	Amendments to 8.8 are proposed to expand the requirement for dangerous goods to be secured on the aircraft to dangerous goods in until load devices, since the risk of damage if not secured applies to both, and to remove the limit of the requirement to movement in flight which could change the orientation of the package, since any movement could result in damage.

~~8.9~~ 6.3.5.6 *Loading on cargo aircraft*

Packages of dangerous goods bearing the "Cargo aircraft only" label shall be loaded for transport on a cargo aircraft in accordance with ~~the provisions~~ 7;2.4.1 ~~in~~ of the Technical Instructions.

Origin:	*Rationale:*
DGP-WG/Annex 18	Packages bearing the "cargo aircraft only" label are not permitted on passenger aircraft, but there is nothing in Annex 18 to require this. The amendment to 8.9 addresses this gap.

6.3.6 Operator responsibilities for specific types of dangerous goods

6.3.6.1 The operator shall comply with the specific requirements for the handling, stowage and transport of infectious substances and radioactive material contained in the Technical Instructions.

6.3.6.2 The operator shall comply with handling and loading requirements for the specific types of dangerous goods contained in the Technical Instructions.

Note.—See 1;

Origin:	*Rationale:*
DGP-WG/Annex 18	There are specific requirements for handling, stowing and transporting infectious substances and radioactive material and for handling and loading some specific types of dangerous goods contained in the Technical Instructions, but no mention of this is currently made in Annex 18. The amendment addresses this gap.

~~9.1~~6.3.7 Information to pilot-in-command or remote-pilot-in-command

The operator ~~of~~ shall ensure that when an aircraft ~~in which~~ is to transport dangerous goods ~~are to be carried shall provide~~ as cargo, the pilot-in-command or remote-pilot-in-command, as applicable, is provided as early as practicable before departure of the aircraft with ~~written~~ information ~~as specified~~ in accordance with Part 7;4 of the Technical Instructions.

Origin:	*Rationale:*
DGP/29	The Standard in 9.1 is modified to clarify that the information provided applies to dangerous goods transported as cargo and to include the remote-pilot-in-command.

Moved from 9.2:

~~9.2~~6.3.8 ~~Information and instructions to flight crew members~~Emergency procedures

~~9.2~~6.3.8.1 The operator shall provide ~~such information in the Operations Manual as will enable the flight crew to carry out its responsibilities with regard to the transport of dangerous goods and shall provide~~ instructions to crew members as to the action to be taken in the event of an ~~emergencies~~ emergency~~arising~~ involving dangerous goods.

Origin:	*Rationale:*
DGP/29	The Standard in 9.2 is modified by removing the requirement for the information to be provided in the Operations Manual given that all operator dangerous goods responsibilities must be provided in the Operations Manual but this is not specified anywhere else.

Moved from 9.5:

~~**9.5 Information from** pilot-in-command **to aerodrome authorities**~~

6.3.8.2 If an in-flight emergency occurs, the pilot-in-command or remote-pilot-in-command shall, as soon as the situation permits, inform the appropriate air traffic services unit, for the information of aerodrome authorities, of any dangerous goods on board the aircraft, as provided for in the Technical Instructions.

Replace 9.6 with the following:

6.3.8.3 The operator shall ensure that in the event of an aircraft accident, a serious incident or incident, where emergency services are responding, the information about the dangerous goods on board that was provided to the pilot-in-command or remote-pilot-in-command is provided, without delay, to emergency services responding to the accident, serious incident or incident.

6.3.8.4 The operator shall ensure that in the event of an aircraft incident, if requested to do so, the information about the dangerous goods on board that was provided to the pilot-in-command or remote-pilot-in-command is provided without delay to aerodrome authorities.

6.3.8.5 The operator shall ensure that in the event of:

a) an aircraft accident; or

b) a serious incident where dangerous goods carried as cargo may be involved,

the information about the dangerous goods on board that was provided to the pilot-in-command or remote pilot-in-command is provided, as soon as possible, to the appropriate authorities of the State of the Operator and the State in which the occurrence took place.

6.3.8.6 The operator shall ensure that in the event of an aircraft incident, if requested to do so, the information about the dangerous goods on board that was provided to the pilot-in-command or the remote-pilot-in-command is provided, without delay, to the appropriate authority of the State in which the occurrence took place.

Note.— The terms "accident", "serious incident" and "incident" are as defined in Annex 13.

Origin:	*Rationale:*
DGP/29	The provisions in 9.6 have been revised to clarify who the intended recipients of the dangerous goods information are and to facilitate the operator's ability to determine who to provide the information to and when to provide.

6.3.9 Prevention of non-compliance

6.3.9.1 The operator shall ensure that measures are in place to mitigate against the risk of:

a) dangerous goods being transported as cargo on an aircraft that are not in compliance with the Technical Instructions and the limitations with regard to the transport of dangerous goods established in the Operations Manual;

b) dangerous goods being transported which are intended as replacement for or removed for replacement of those required to be aboard an aircraft in accordance with pertinent airworthiness requirements and operator regulations that are not in compliance with the Technical Instructions;

c) dangerous goods being transported in air mail which are not in compliance with the Technical Instructions; and

d) passengers and crew carrying dangerous goods on board an aircraft which they are not permitted to carry.

6.3.9.2 The mitigations required by 6.2.6.1 shall include, at a minimum:

a) measures aimed at ensuring cargo customers are aware of the limitations on the transport of dangerous goods as cargo by air;

b) measures aimed at ensuring passengers and crew are aware of the limitations on the carriage of dangerous goods by air; and

c) measures aimed at assisting operators' acceptance staff in identifying, detecting and rejecting dangerous goods presented as general cargo.

Note 1.— See 2.4 for limitations on the transport of dangerous goods by air.

Note 2.— See Part 7;4.8 of the Technical Instructions for provision of information at cargo acceptance points and Part 7;5 of the Technical Instructions for provision of information to passengers and for passenger check-in procedures.

Note 3.— See Part 7;1.1 of the Technical Instructions for cargo acceptance procedures related to detecting dangerous goods presented as general cargo.

Note 4.— See Part 7;6 of the Technical Instructions for provisions to aid recognition of dangerous goods in general cargo, baggage or mail.

Origin: DGP/29	Rationale: 6.3.9 is a proposed new SARP aimed at mitigating against the risk of non-compliance dangerous goods being transported by air. The inadvertent transport of undeclared dangerous goods offered as general cargo, dangerous goods in air mail that are not permitted, and dangerous goods carried by passengers and crew that are not permitted pose a risk to aircraft. The Technical Instructions currently contain several prescriptive requirements for information concerning dangerous goods to be provided to various entities that may introduce this risk as one way to mitigate it. These are referred to in the Notes proposed for inclusion under 6.3.9.2. The proposed new SARP is intended to make the need to mitigate the risk clear while not limiting measures to what is provided in Technical Instructions. It aims to ensure operators implement effective measures for their specific operating environment while incorporating the existing measures in the Technical Instructions in a manner that focuses on what needs to be achieved.

6.3.10 Reporting of dangerous goods occurrences to State authorities

Note.— See Chapter 10 for requirements for the operator to report dangerous goods occurrences to State authorities.

Origin: DGP-WG/Annex 18	Rationale: It is proposed to add a note to the reporting requirements in Chapter 10 to ensure comprehensive provisions for the operator within this chapter

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~~CHAPTER 7. SHIPPER'S RESPONSIBILITIES~~

~~7.1 General requirements~~

~~Before a person offers any package or overpack of dangerous goods for transport by air, that person shall ensure that the dangerous goods are not forbidden for transport by air and are properly classified, packed, marked, labelled and accompanied by a properly executed dangerous goods transport document, as specified in this Annex and the Technical Instructions.~~

Origin:	*Rationale:*
DGP/29	This SARP is covered by proposed new 5.2.1 a), 5.2.1 b) 2), 5.2.1 b) 3), 5.2.1 b) 4) and 5.2.1 b) 5)

~~7.2 Dangerous goods transport document~~

~~7.2.1 Unless otherwise provided for in the Technical Instructions, the person who offers dangerous goods for transport by air shall complete, sign and provide to the operator a dangerous goods transport document, which shall contain the information required by those Instructions.~~

~~7.2.2 The transport document shall bear a declaration signed by the person who offers dangerous goods for transport indicating that the dangerous goods are fully and accurately described by their proper shipping names and that they are classified, packed, marked, labelled, and in proper condition for transport by air in accordance with the relevant regulations.~~

Origin:	*Rationale:*
DGP/29	The provisions in 7.2 are details contained in the Technical Instructions. The SARPs are therefore redundant. The dangerous goods transport document is covered by proposed new 5.2.1 b) 4)

~~7.3 Languages to be used~~

~~**Recommendation.** *In addition to the languages which may be required by the State of Origin and pending the development and adoption of a more suitable form of expression for universal use, English should be used for the dangerous goods transport document.*~~

Origin:	*Rationale:*
DGP/29	This recommendation is contained in by Part 5, Chapter 4, 4.1.6.3 of the Technical Instructions. It is therefore redundant.

Origin:	*Rationale:*
DGP/29	A new chapter on airport operator's responsibilities is proposed to capture a requirement currently in the Technical Instructors

CHAPTER 7. AIRPORT OPERATOR'S RESPONSIBILITIES

Moved from 9.3:

~~9.3~~7.1 Provision of ~~I~~information to passengers

Each ~~Contracting~~ State shall ensure that ~~information is~~ the specific operating regulations required by Annex 19 require that airport operators promulgate~~d~~ information in such a manner that passengers are warned ~~as to~~ of the types of dangerous goods which they are forbidden from ~~transporting~~ carrying aboard an aircraft as provided for in ~~the~~ Part 7 of the Technical Instructions.

Note.— Requirements for the operator to provide information to passengers are contained in Chapter 6.

Moved to Chapter 6:

~~CHAPTER 8. OPERATOR'S RESPONSIBILITIES~~

~~*Note 1. — Annex 19 includes safety management provisions for air operators. Further guidance is contained in the* Safety Management Manual (SMM) *(Doc 9859).*~~

~~*Note 2. — The carriage of dangerous goods is included in the scope of the operator's safety management system (SMS).*~~

~~8.1 Acceptance for transport~~

~~An operator shall not accept dangerous goods for transport by air:~~

~~a) unless the dangerous goods are accompanied by a completed dangerous goods transport document, except where the Technical Instructions indicate that such a document is not required; and~~

~~b) until the package, overpack or freight container containing the dangerous goods has been inspected in accordance with the acceptance procedures contained in the Technical Instructions.~~

~~*Note 1. — See Chapter 12 concerning the reporting of dangerous goods accidents and incidents.*~~

~~*Note 2. — Special provisions relating to the acceptance of overpacks are contained in the Technical Instructions.*~~

~~8.2 Acceptance checklist~~

~~An operator shall develop and use an acceptance checklist as an aid to compliance with the provisions of 8.1.~~

~~8.3 Loading and stowage~~

~~Packages and overpacks containing dangerous goods and freight containers containing radioactive materials shall be loaded and stowed on an aircraft in accordance with the provisions of the Technical Instructions.~~

~~8.4 Inspection for damage or leakage~~

~~8.4.1 Packages and overpacks containing dangerous goods and freight containers containing radioactive materials shall be inspected for evidence of leakage or damage before loading on an aircraft or into a unit load device. Leaking or damaged packages, overpacks or freight containers shall not be loaded on an aircraft.~~

~~8.4.2 A unit load device shall not be loaded aboard an aircraft unless the device has been inspected and found free from any evidence of leakage from, or damage to, any dangerous goods contained therein.~~

~~8.4.3 Where any package of dangerous goods loaded on an aircraft appears to be damaged or leaking, the operator shall remove such package from the aircraft, or arrange for its removal by an appropriate authority or organization, and thereafter shall ensure that the remainder of the consignment is in a proper condition for transport by air and that no other package has been contaminated.~~

~~8.4.4 Packages or overpacks containing dangerous goods and freight containers containing radioactive materials shall be inspected for signs of damage or leakage upon unloading from the aircraft or unit load device. If evidence of damage or leakage is found, the area where the dangerous goods or unit load device were stowed on the aircraft shall be inspected for damage or contamination.~~

~~**8.5 Loading restrictions in passenger cabin or on flight deck**~~

~~Dangerous goods shall not be carried in an aircraft cabin occupied by passengers or on the flight deck of an aircraft, except in circumstances permitted by the provisions of the Technical Instructions.~~

~~**8.6 Removal of contamination**~~

~~8.6.1 Any hazardous contamination found on an aircraft as a result of leakage or damage to dangerous goods shall be removed without delay.~~

~~8.6.2 An aircraft which has been contaminated by radioactive materials shall immediately be taken out of service and not returned to service until the radiation level at any accessible surface and the non-fixed contamination are not more than the values specified in the Technical Instructions.~~

~~**8.7 Separation and segregation**~~

~~8.7.1 Packages containing dangerous goods which might react dangerously one with another shall not be stowed on an aircraft next to each other or in a position that would allow interaction between them in the event of leakage.~~

~~8.7.2 Packages of toxic and infectious substances shall be stowed on an aircraft in accordance with the provisions of the Technical Instructions.~~

~~8.7.3 Packages of radioactive materials shall be stowed on an aircraft so that they are separated from persons, live animals and undeveloped film, in accordance with the provisions in the Technical Instructions.~~

~~**8.8 Securing of dangerous goods cargo loads**~~

~~When dangerous goods subject to the provisions contained herein are loaded in an aircraft, the operator shall protect the dangerous goods from being damaged, and shall secure such goods in the aircraft in such a manner that will prevent any movement in flight which would change the orientation of the packages. For packages containing radioactive materials, the securing shall be adequate to ensure that the separation requirements of 8.7.3 are met at all times.~~

~~**8.9 Loading on cargo aircraft**~~

~~Packages of dangerous goods bearing the "Cargo aircraft only" label shall be loaded in accordance with the provisions in the Technical Instructions.~~

CHAPTER 8. TRANSPORT OF DANGEROUS GOODS BY POST

Moved from under 11.4, Note 1.

Note ~~1~~.— In accordance with the Universal Postal Union (UPU) Convention, dangerous goods are not permitted in mail, except as provided for in the Technical Instructions.

8.1 Designated postal operator's responsibilities

8.1.1 A designated postal operator accepting mail into air transport shall:

a) establish and maintain a dangerous goods training programme in accordance with Chapter 9;

b) implement procedures for preventing the introduction of dangerous goods in mail when not in compliance with the provisions of this Annex and the Technical Instructions; and

c) implement procedures in accordance with Chapter 10 for the reporting of dangerous goods accidents, dangerous goods incidents and occasions when undeclared or misdeclared dangerous goods are discovered in mail offered for air transport.

8.1.2 A designated postal operator that allows dangerous goods in mail shall:

a) ensure that dangerous goods are only permitted in the mail in accordance with Part 1;2.3 of the Technical Instructions; and

b) not permit lithium batteries identified in Part 1;2.3 of the Technical Instructions in the mail into air transport unless the civil aviation authority of its State has issued a specific approval.

Origin:	*Rationale:*
DGP/29	Current Standard 11.4 requires procedures of designated postal operators for controlling the introduction of dangerous goods in mail into air transport be approved by the civil aviation authority of the Sate where the mail is accepted. Annex 18 does not require the designated postal operators to do anything. This new SARP outlines what the designated operator needs to do and what the civil aviation authority needs to consider when approving its procedures. It also adds a requirement for procedures for reporting of dangerous goods accidents, dangerous goods incidents and occasions when undeclared or misdeclared dangerous goods offered for air transport are discovered in mail. Data from these reports is necessary for the State's safety risk management activities.

8.1.3 Each State's designated postal operator accepting mail in another State shall comply with the requirements of 8.1.1 and 8.1.2.

Origin:	*Rationale:*
DGP/29	The designated postal operator is responsible for its postal operators regardless of where they operate. The civil aviation authority needs to evaluate how the designated postal operator manages its operation in other States when approving the dangerous goods training programme.

Moved from 11.4:

~~11.4~~8.2 Approval of procedures for controlling the introduction of ~~D~~dangerous goods by mail into air transport

The procedures of a State's designated postal operators ~~for controlling the introduction of dangerous goods in mail into air transport~~ identified in 8.1 shall be approved by the State's civil aviation authority ~~of the State where the mail is accepted.~~

Origin:	*Rationale:*
DGP/29	The wording of the Standard was modified to remove any implication that the State must approve procedures of a foreign designated postal operator operating in its territory.

Current Note 1 is moved to top of this chapter:

~~*Note 1.— In accordance with the Universal Postal Union (UPU) Convention, dangerous goods are not permitted in mail, except as provided for in the Technical Instructions.*~~

Note 1.— See Chapter 9 for approval of the designated postal operator's dangerous goods training programme.

Note 2.— ~~The Universal Postal Union has established procedures to control the introduction of dangerous goods into air transport through the postal services~~ The Universal Postal Convention embodies the rules applicable throughout the international postal service and the provisions concerning the letter-post and parcel-post services. The Universal Postal Union (UPU) requires that member countries ensure that their designated postal operators fulfil the obligations arising from the Universal Postal Convention. The Regulations to the Universal Postal Convention contain the rules of application necessary for the implementation of the Universal Postal Convention and reflect the ICAO Standards and Recommended Practices for the transport of dangerous goods in airmail (see the UPU Convention Manual~~~~Parcel Post Regulations and Letter Post Regulations~~).

Origin:	*Rationale:*
DGP/29	Amendments to the note were made to more accurately reflect the role of the Universal Postal Union.

Note 3.— Guidance for approving the procedures established by designated postal operators to control the introduction of dangerous goods into air transport may be found in the Supplement to the Technical Instructions (Part S-1, Chapter 3).

~~CHAPTER 9. PROVISION OF INFORMATION~~

Moved to 6.7:

~~9.1 Information to pilot-in-command~~

~~The operator of an aircraft in which dangerous goods are to be carried shall provide the pilot-in-command as early as practicable before departure of the aircraft with written information as specified in the Technical Instructions.~~

Moved to 6.8.1:

~~9.2 Information and instructions to flight crew members~~

~~The operator shall provide such information in the Operations Manual as will enable the flight crew to carry out its responsibilities with regard to the transport of dangerous goods and shall provide instructions as to the action to be taken in the event of emergencies arising involving dangerous goods.~~

Moved to 7.2:

~~9.3 Information to passengers~~

~~Each Contracting State shall ensure that information is promulgated in such a manner that passengers are warned as to the types of dangerous goods which they are forbidden from transporting aboard an aircraft as provided for in the Technical Instructions.~~

Captured in Chapter 6:

~~9.4 Information to other persons~~

~~Operators, shippers or other organizations involved in the transport of dangerous goods by air shall provide such information to their personnel as will enable them to carry out their responsibilities with regard to the transport of dangerous goods and shall provide instructions as to the action to be taken in the event of emergencies arising involving dangerous goods.~~

~~9.5 Information from pilot-in-command to aerodrome authorities~~

Moved to 6.8.2:

~~If an in-flight emergency occurs, the pilot-in-command shall, as soon as the situation permits, inform the appropriate air traffic services unit, for the information of aerodrome authorities, of any dangerous goods on board the aircraft, as provided for in the Technical Instructions.~~

Moved to 6.8.3:

~~**9.6 Information in the event of an aircraft accident or incident**~~

~~9.6.1 In the event of:~~

~~a) an aircraft accident; or~~

~~b) a serious incident where dangerous goods carried as cargo may be involved,~~

~~the operator of the aircraft carrying dangerous goods as cargo shall provide information, without delay, to emergency services responding to the accident or serious incident about the dangerous goods on board, as shown on the written information to the pilot in command. As soon as possible, the operator shall also provide this information to the appropriate authorities of the State of the Operator and the State in which the accident or serious incident occurred.~~

~~9.6.2 In the event of an aircraft incident, the operator of an aircraft carrying dangerous goods as cargo shall, if requested to do so, provide information without delay to emergency services responding to the incident and to the appropriate authority of the State in which the incident occurred, about the dangerous goods on board, as shown on the written information to the pilot in command.~~

~~*Note. The terms "accident", "serious incident" and "incident" are as defined in Annex 13.*~~

Origin:	*Rationale for approach taken in amending the training provisions:*
DGP/29	Much of the dangerous goods training provisions currently in the Technical Instructions are proposed for inclusion in Annex 18. It is considered more appropriate to include training provisions in the Annex because the State's oversight responsibilities including the obligation to approve dangerous goods training programmes of the operator and may determine that approval is necessary for other entities in its State as well. Keeping the provisions in the Annex creates more visibility to the State and ensures they are consulted when amendments are proposed.

Moved from Chapter 10:

CHAPTER ~~10~~ 9. TRAINING ~~PROGRAMMES~~ AND ASSESSMENT

Origin:	*Rationale for approach taken in amending the training provisions:*
DGP/29	The title is modified to reflect the critical role assessment plays in ensuring personnel are competent to perform their dangerous goods functions.

~~10.1~~9.1 ~~Establishment of~~ Dangerous goods training programme~~s~~

Note 1.— A training programme includes elements such as design methodology, assessment, initial and recurrent training, instructor qualifications and competencies, training records, and evaluation of the effectiveness of the training.

Origin:	*Rationale for approach taken in amending the training provisions:*
DGP/29	The note is moved from the Technical Instructions. It is intended to make it clear that the State needs to consider more than a course syllabus when approving dangerous goods training programmes.

~~Initial and recurrent dangerous goods training programmes shall be established and maintained in accordance with the Technical Instructions.~~ 9.1.1 Each State shall require the establishment and maintenance of a dangerous goods training programme by any entity that:

a) offers, handles, or transports dangerous goods by air; or

b) causes dangerous goods to be offered, handled, or transported by air.

Origin:	*Rationale:*
DGP/29	Who requires a dangerous goods training programme is currently established in the Technical Instructions. There have been extensive discussions on the Dangerous Goods Panel on whether training programmes can be required for entities not intending to handle dangerous goods by air. Entities such as freight forwarders play an important role in preventing undeclared dangerous goods from being introduced into the air cargo system, but they can only do this if they know how to identify them. A mandatory requirement for freight forwarders and other entities handling general cargo to be trained was introduced into the 2005-2006 Edition of the Technical Instructions, but some panel members had not interpreted the provisions to be mandatory because they referred to guidance. Whether mandating

	training for entities not intending to handle dangerous goods is feasible globally was raised by the DGP when it was revising the dangerous goods training provisions in the Technical Instructions to support a competency-based approach to training and assessment. Some States did not have oversight authority over entities not performing functions described in the Technical Instructions, so a mandatory requirement was not feasible in those States. However, entities performing functions described in the Technical Instructions are required to be trained in those States regardless of whether they knowingly or unknowingly perform them. The amendment is intended to capture this concept.

Moved from under 10.2.1:

Note.— A ~~D~~dangerous goods training programme~~s are~~ is required for all operators regardless of whether ~~or not they are approved~~ the operator has been issued a specific approval to transport dangerous goods as cargo in accordance with Annex 6.

Origin:	*Rationale:*
DGP/29	Amendments to the note are proposed to refer to the specific approval required by Annex 6 and to specify that it applies to cargo. The need for all operators to have dangerous goods training programmes is established in new 9.1.1, but it is important to maintain this note for the same reason it was added through Amendment 12 to Annex 18. The need for clarification was based on safety oversight audit results that highlighted a lack of awareness of dangerous goods training requirements in relation to operators not approved to carry dangerous goods.

9.1.2 Each State shall require the establishment and maintenance of a dangerous goods training programme by its designated postal operators regardless of whether the designated postal operator allows the introduction of dangerous goods in mail in accordance with Part 1 of the Technical Instructions.

~~10.2~~9.2 Approval of training programmes

~~10.2.1~~9.2.1 The~~Dangerous goods training programme for operators~~ appropriate authority of the State of the Operator shall ~~be~~ approve~~d by the appropriate authority of the State of the Operator~~ the operator's dangerous goods training programme.

Origin:	*Rationale:*
DGP/29	Editorial revision for the sake of alignment with the wording of other Standards.

Moved from under 10.2.3

Note ~~2~~.— ~~See 4.2.2 of~~ Annex 6 ~~— Operation of Aircraft, Part I — International Commercial Air Transport — Aeroplanes for surveillance of operations by a foreign operator~~, Parts I, III and IV require that States recognize as valid the air operator certificate (AOC) issued by another State provided that the requirements under which the certificate was issued are at least equal to the applicable Standards specified in Annexes 6 and 19. This includes the operator's dangerous goods training programme.

Origin:	*Rationale:*
DGP/29	Modified to clarify the intent of the existing note and to add missing references. It has been reported that some States subject foreign operators' training programmes to review and approval despite training programmes only being subject to the approval of the State of the Operator. A reference to the Standard in Annex 6 that specifies that the State shall recognize as valid an air operator certificate issued by another Contracting State was added through Amendment 12 to Annex 18. The expands the note by describing the actual requirement in Annex 6.

Moved to under 9.1.1 as Note 1:

~~*Note.— Dangerous goods training programmes are required for all operators regardless of whether or not they are approved to transport dangerous goods.*~~

~~10.2.2~~9.2.2 The State's civil aviation authority shall approve the ~~D~~dangerous goods training programme~~s~~ of the State's ~~for~~ designated postal operators ~~shall be approved by the civil aviation authority of the State where the mail is accepted by the designated postal operator~~.

Origin:	*Rationale:*
DGP/29	Revised to clarify the scope of oversight. Designated postal operators may operate in different States. The wording of the current Standard may imply that the civil aviation authority must approve the training programme of foreign designated postal operators operating in its State. The existing SARP was added to Annex 18 through Amendment 12, along with new Standards in current 11.4, to control the introduction of dangerous goods not permitted in mail from entering the airmail stream. The provisions were intended to provide for stronger relationships between civil aviation and postal authorities. Not specifying the civil aviation authority as the authority required to approve the training programme could result in the designated postal operator approving itself. The civil aviation authority needs to approve the dangerous goods programme because of the unique risks to air transport of which the designated postal operator may not be aware.

~~10.2.3~~9.2.3 **Recommendation.—** *Dangerous goods training programmes required for entities other than operators and designated postal operators should be approved as determined by the appropriate national authority in accordance with its safety risk management activities*.

Origin:	*Rationale:*
DGP/29	Modified to clarify that a risk-based approach to determining whether to approve other entities should be used. The decision will be different among States based on the level of risk posed by specific entities in the State and the size and complexity of the State. Alternate risk mitigating approaches may be more appropriate

~~*Note 1.— See 11.4 for dangerous goods by mail.*~~

Origin:	*Rationale:*
DGP/29	Deleted because provisions for the mail are no longer contained in one area and it would be inconsistent to cross reference provisions for one entity without cross referencing parts of the Annex for others.

Moved to under 9.2.1

~~*Note 2.— See 4.2.2 of Annex 6 — Operation of Aircraft, Part I — International Commercial Air Transport — Aeroplanes for surveillance of operations by a foreign operator.*~~

9.3 Competency of personnel

9.3.1 Each State shall require the employer to ensure their personnel are competent to perform any function for which they are responsible prior to performing any of these functions through dangerous goods training and assessment commensurate with the functions for which they are responsible.

9.3.2 Each State shall require the employer to provide initial and recurrent dangerous goods training and assessment in accordance with the Technical Instructions.

9.3.3 Each State shall require the employer to ensure that the competency of personnel is maintained.

9.3.4 Each State shall require the employer to ensure that instructors delivering dangerous goods training are competent in instruction and the function(s) that they will instruct prior to delivering such training.

Note.— An approach to ensuring personnel are competent to perform any function for which they are responsible is provided in Guidance on a Competency-based Approach to Dangerous Goods Training and Assessment *(Doc 10147).*

Origin:	*Rationale:*
DGP/29	Moved from the Technical Instructions to make the requirements clear to the State.

9.4 Training and assessment records

9.4.1 Each State shall require the employer to maintain and retain records of training and assessment in accordance with the Technical Instructions.

Origin:	*Rationale:*
DGP/29	The SARPs in Section 9.3 are moved from the Technical Instructions. The record of training provides evidence that employees have been trained and assessed as competent to perform their functions. They provide a standardized tool for authorities to use when evaluating training programmes.

Moved to Chapter 9:

~~CHAPTER 10. TRAINING PROGRAMMES~~

Moved to 9.1:

~~10.1 Establishment of training programmes~~

~~Initial and recurrent dangerous goods training programmes shall be established and maintained in accordance with the Technical Instructions.~~

Moved to 9.2:

~~10.2 Approval of training programmes~~

~~10.2.1 Dangerous goods training programmes for operators shall be approved by the appropriate authority of the State of the Operator.~~

Moved to under 9.1.1:

~~*Note. Dangerous goods training programmes are required for all operators regardless of whether or not they are approved to transport dangerous goods.*~~

Moved to 9.2.2:

~~10.2.2 Dangerous goods training programmes for designated postal operators shall be approved by the civil aviation authority of the State where the mail is accepted by the designated postal operator.~~

Moved to 9.2.3:

~~10.2.3 **Recommendation.** *Dangerous goods training programmes required for entities other than operators and designated postal operators should be approved as determined by the appropriate national authority.*~~

~~*Note 1. See 11.4 for dangerous goods by mail.*~~

Moved to under 9.2.1:

~~*Note 2. See 4.2.2 of Annex 6* Operation of Aircraft, *Part I* International Commercial Air Transport Aeroplanes *for surveillance of operations by a foreign operator.*~~

———————

Origin:	*Rationale:*
DGP/29	This rational applies to all of Chapter 10. Chapter 10 replaces reporting and investigation provisions currently contained in Chapter 12. It expands upon the safety data and safety information collection, analysis, protection, sharing and exchange SARPs contained in Chapter 5 of Annex 19 to apply specifically to dangerous goods.

CHAPTER 10. DANGEROUS GOODS SAFETY INTELLIGENCE

Note.— In addition to the provisions of this chapter, other provisions relative to the promotion of dangerous goods accident and incident prevention by collection and analysis of safety data and by a prompt exchange of safety information, as part of the State safety programme (SSP), are included in Annex 19 — Safety Management and, to this effect, are applicable to this Annex. Further guidance is contained in the Safety Management Manual (SMM) *(Doc 9859).*

10.1 Safety data collection and processing systems

The State shall ensure its safety data collection and processing systems (SDCPS) capture, store, aggregate and enable the analysis of dangerous goods safety data and dangerous goods safety information in accordance with Annex 19, 5.1.

Note 1.— Within the context of this Annex, SDCPS refers to processing and reporting systems, safety databases, schemes for exchange of information, and recorded information including but not limited to:

a) data and information related to safety investigations by State authorities, operators or other entities involved with the transport of dangerous goods by air;

b) mandatory safety reporting systems as indicated in 5.1.2 of Annex 19 and 10.1.1 of this Annex; and

c) voluntary safety reporting systems as indicated in 5.1.3 of Annex 19 and 10.1.2 of this Annex.

Note 2.— Guidance related to SDCPS is contained in the Safety Management Manual (SMM) *(Doc 9859) and the [DG guidance material].*

10.1.1 Mandatory safety reporting system

10.1.1.1 States shall include reporting of dangerous goods accidents, dangerous goods incidents and occasions when undeclared or misdeclared dangerous goods are discovered as part of their mandatory safety reporting systems in accordance with the provisions of Annex 19.

10.1.1.2 States' mandatory reporting systems shall include a requirement for the operator to report dangerous goods accidents and dangerous goods incidents to the appropriate national authority of the State in which they occurred and to the State of the Operator.

10.1.1.3 States' mandatory reporting systems shall include a requirement for the operator to report occasions when undeclared or misdeclared dangerous goods are discovered in cargo or mail to the appropriate national authority of the State in which they were discovered and the State of the Operator.

10.1.1.4 States' mandatory reporting systems shall include a requirement for the operator to report occasions when dangerous goods not permitted to be carried by passengers or crew members are discovered by the operator, or the operator is advised by the entity that discovers the dangerous goods, either in the baggage or on the person, of passengers or crew members to the appropriate national authority of the State in which this occurred.

Note.— Dangerous goods permitted to be carried by passengers and crew members are provided in Part 8 of the Technical Instructions.

10.1.1.5 States' mandatory reporting systems shall include a requirement for its designated operators to report dangerous goods accidents, dangerous goods incidents and occasions when dangerous goods which do not comply with the provisions of this Annex and the Technical Instructions are discovered in mail offered for air transport.

10.1.1.6 **Recommendation.—** *States' mandatory reporting systems should include a requirement for entities other than operators to report dangerous goods accidents and dangerous goods incidents to the appropriate national authority of the State in which they occurred.*

10.1.1.7 **Recommendation.—** *States' mandatory reporting systems should include a requirement for entities other than operators to report occasions when undeclared or misdeclared dangerous goods are discovered to the appropriate national authority of the State in which they were discovered.*

10.1.2 Voluntary safety reporting system

10.1.2.1 States shall establish a voluntary dangerous goods safety reporting system to collect safety data and safety information from operators that is not captured by mandatory safety reporting systems in accordance with Annex 19, 5.1.

10.1.2.2 **Recommendation.—** *States should establish a voluntary dangerous goods safety reporting system to collect safety data and safety information from entities other than operators, not captured by mandatory reporting systems in accordance with Annex 19, 5.1.*

10.2 Safety data and safety information analysis

States shall establish and maintain a process to analyze the dangerous goods safety data and dangerous goods safety information from the SDCPS and associated safety databases in accordance with Annex 19, 5.2.

10.3 Safety data and safety information protection

10.3.1 States shall accord protection to dangerous goods safety data captured by, and dangerous goods safety information derived from, voluntary safety reporting systems and related sources in accordance with Annex 19, 5.3.

10.3.2 **Recommendation.—** States should extend the protection referred to in 10.3.1 to safety data captured by, and safety information derived from, mandatory dangerous goods safety reporting system and related sources in accordance with Annex 19, 5.3.

10.4 Safety information sharing and exchange

10.4.1 The State shall share and exchange dangerous goods safety information in accordance with Annex 19, 5.4.

10.4.2 If a State, in the analysis of the dangerous goods information contained in its safety data collection and processing system (SDCPS), identifies safety issues which may pose an unacceptable risk to the global aviation safety system, that State shall forward such safety information to ICAO with a minimum of delay.

Note 1.— Provisions for a SDCPS and safety information sharing and exchange between States are included in Annex 19. Further guidance is contained in the Safety Management Manual (SMM) *(Doc 9859).*

Note 2.— Whenever practicable, the safety information sent to ICAO is to be prepared in one of the working languages of the Organization.

10.4.3 States shall provide ICAO with dangerous goods information from their SDCPS upon request to address global safety issues related to the transport of dangerous goods by air.

10.4.4 States shall participate in cooperative efforts with other States to eliminate unsafe practices and non-compliance with the Technical Instructions.

10.4.5 States' cooperative efforts shall include coordination of investigations of dangerous goods accidents and dangerous goods incidents, identified safety issues related to the transport of dangerous goods by air, non-compliance with the Technical Instructions and enforcement actions.

~~CHAPTER 11. COMPLIANCE~~

Moved to

~~11.1 Inspection systems~~

~~Each Contracting State shall establish inspection, surveillance and enforcement procedures for all entities performing any function prescribed in its regulations for air transport of dangerous goods with a view to achieving compliance with those regulations.~~

~~*Note 1. It is envisaged that these procedures would include provisions for:*~~

~~*inspecting dangerous goods consignments prepared, offered, accepted or transported by the entities referred to in 11.1;*~~

~~*inspecting the practices of the entities referred to in 11.1; and*~~

~~*investigating alleged violations (see 11.3).*~~

~~*Note 2. Guidance on dangerous goods inspections and enforcement may be found in the Supplement to the Technical Instructions (Part S-5, Chapter 1 and Part S-7, Chapters 5 and 6).*~~

~~11.2 Cooperation between States~~

Moved to 3.2.3.2:

~~**Recommendation.** *Each Contracting State should participate in cooperative efforts with other States concerning violations of dangerous goods regulations, with the aim of eliminating such violations. Cooperative efforts could include coordination of investigations and enforcement actions; exchanging information on a regulated party's compliance history; joint inspections and other technical liaisons, exchange of technical staff, and joint meetings and conferences. Appropriate information that could be exchanged include safety alerts, bulletins or dangerous goods advisories; proposed and completed regulatory actions; incident reports; documentary and other evidence developed in the investigation of incidents; proposed and final enforcement actions; and educational/outreach materials suitable for public dissemination.*~~

~~11.3 Penalties~~

~~11.3.1 Each Contracting State shall take such measures as it may deem appropriate to achieve compliance with its dangerous goods regulations including the prescription of appropriate penalties for violations.~~

~~11.3.2 **Recommendation.** *Each Contracting State should take appropriate action to achieve compliance with its dangerous goods regulations, including the prescription of appropriate penalties for violations, when information about a violation is received from another Contracting State, such as when a consignment of dangerous goods is found not to comply with the requirements of the Technical Instructions on arrival in a Contracting State and that State reports the matter to the State of Origin.*~~

Origin:	*Rationale:*
DGP/29	

Moved to Chapter 7:

~~11.4 Dangerous goods by mail~~

~~The procedures of designated postal operators for controlling the introduction of dangerous goods in mail into air transport shall be approved by the civil aviation authority of the State where the mail is accepted.~~

~~*Note 1. In accordance with the Universal Postal Union (UPU) Convention, dangerous goods are not permitted in mail, except as provided for in the Technical Instructions.*~~

~~*Note 2. The Universal Postal Union has established procedures to control the introduction of dangerous goods into air transport through the postal services (see the UPU Parcel Post Regulations and Letter Post Regulations).*~~

~~*Note 3. Guidance for approving the procedures established by designated postal operators to control the introduction of dangerous goods into air transport may be found in the Supplement to the Technical Instructions (Part S-1, Chapter 3).*~~

~~CHAPTER 12. DANGEROUS GOODS ACCIDENT AND INCIDENT REPORTING~~

Moved partly to 3.2.3 and partly to 10.1.1.2:

~~12.1 With the aim of preventing the recurrence of dangerous goods accidents and incidents, each Contracting State shall establish procedures for investigating and compiling information concerning such accidents and incidents which occur in its territory and which involve the transport of dangerous goods originating in or destined for another State. Reports on such accidents and incidents shall be made in accordance with the detailed provisions of the Technical Instructions.~~

~~12.2 **Recommendation.** *With the aim of preventing the recurrence of dangerous goods accidents and incidents, each Contracting State should establish procedures for investigating and compiling information concerning such accidents and incidents which occur in its territory other than those described in 12.1. Reports on such accidents and incidents should be made in accordance with the detailed provisions of the Technical Instructions.*~~

~~12.3 With the aim of preventing the recurrence of instances of undeclared or misdeclared dangerous goods in cargo, each Contracting State shall establish procedures for investigating and compiling information concerning such occurrences which occur in its territory and which involve the transport of dangerous goods originating in or destined for another State. Reports on such instances shall be made in accordance with the detailed provisions of the Technical Instructions.~~

~~12.4 **Recommendation.** *With the aim of preventing the recurrence of instances of undeclared or misdeclared dangerous goods in cargo, each Contracting State should establish procedures for investigating and compiling information concerning such occurrences which occur in its territory other than those described in 12.3. Reports on such instances should be made in accordance with the detailed provisions of the Technical Instructions.*~~

CHAPTER ~~13~~ 11. DANGEROUS GOODS SECURITY PROVISIONS

11.1 Each ~~Contracting~~ State shall establish dangerous goods security measures, applicable to ~~shippers, operators and other individuals~~ entities in the supply chain engaged in the transport of dangerous goods by air, ~~to be taken~~ to minimize theft or misuse of dangerous goods that may endanger persons, property or the environment. These measures should be commensurate with security provisions specified in other Annexes and the Technical Instructions.

Origin:	*Rationale:*
DGP/29	The current reference to “other individuals” is ambiguous. Referring to “entities in the supply chain” covers the specific entities currently referred to and “other individuals” more clearly.

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APPENDIX E

DRAFT PROPOSED AMENDMENT TO ANNEX 6 FOR THE CONSIDERATION OF THE FLIGHT OPERATIONS PANEL (FLTOPSP)

PROPOSED AMENDMENT TO

ANNEX 6

OPERATION OF AIRCRAFT

PART I — *INTERNATIONAL COMMERCIAL AIR TRANSPORT — AEROPLANES*

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CHAPTER 14. DANGEROUS GOODS

14.1 STATE RESPONSIBILITIES

~~*Note 1.— Annex 18, Chapter 11, contains requirements for each Contracting State to establish oversight procedures for all entities (including packers, shippers, ground handling agents and operators) performing dangerous goods functions.*~~

Note ~~2~~1.— Operator responsibilities for the transport of dangerous goods are contained in Chapter~~s~~ ~~8~~6, ~~9 and 10~~ of Annex 18. Part 7 of the Technical Instructions for the Safe Transport of Dangerous Goods by Air *(Doc 9284) (Technical Instructions) contains the operator's responsibilities ~~and requirements for incident and accident reporting~~.*

Note ~~3~~2.— The requirements pertaining to crew members or passengers carrying dangerous goods on aircraft are set forth in Part 8, Chapter 1, of the Technical Instructions.

Note ~~4~~3.— COMAT that meets the classification criteria of the Technical Instructions for dangerous goods are considered cargo and must be transported in accordance with Part 1;2.2.2 or Part 1;2.2.3 of the Technical Instructions (e.g. aircraft parts such as chemical oxygen generators, fuel control units, fire extinguishers, oils, lubricants, cleaning products).

Origin:	*Rationale:*
DGP-WG/Annex 18	Note 1 is proposed for deletion as the provisions it refers to in Annex 18 are proposed for deletion. The amendments in Note 2 are editorial amendments to references to reflect the new proposed structure of Annex 18.

14.2 OPERATORS WITH NO SPECIFIC APPROVAL FOR THE TRANSPORT OF DANGEROUS GOODS AS CARGO

The State of the Operator shall ensure that operators with no specific approval to transport dangerous goods have:

a) established a dangerous goods training programme that meets the requirements of Annex 18, ~~the applicable requirements of the Technical Instructions, Part 1, Chapter 4,~~ Chapter 9 and the requirements of the State's regulations, as appropriate. Details of the dangerous goods training programme shall be included in the operator's operations manuals;

b) established dangerous goods ~~policies and~~ procedures, instructions and guidance in its operations manual ~~to meet~~ for personnel executing, at a minimum, the requirements of Annex 18, Chapter 6, 6.2, the Technical Instructions and the State's regulations ~~to allow operator personnel to:~~

~~1) identify and reject undeclared dangerous goods, including COMAT classified as dangerous goods; and~~

~~2) report to the appropriate authorities of the State of the Operator and the State in which it occurred any:~~

~~i) occasions when undeclared dangerous goods are discovered in cargo or mail; and~~

~~ii) dangerous goods accidents and incidents.~~

14.3 OPERATORS WITH A SPECIFIC APPROVAL FOR THE TRANSPORT OF DANGEROUS GOODS AS CARGO

The State of the Operator shall issue a specific approval for the transport of dangerous goods and ensure that the operator:

a) establishes a dangerous goods training programme that meets the requirements ~~in the Technical Instructions, Part 1, Chapter 4, Table 1-4,~~ of Annex 18, Chapter 9 and the requirements of the State regulations, as appropriate. Details of the dangerous goods training programme shall be included in the operator's operations manuals;

b) establishes dangerous goods ~~policies and~~ procedures, instructions and guidance in its operations manual ~~to meet~~ for personnel executing, at a minimum, the requirements of Annex 18, Chapter 6, 6.3, the Technical Instructions and the State's regulations ~~to enable operator personnel to:~~

~~1) identify and reject undeclared or misdeclared dangerous goods, including COMAT classified as dangerous goods;~~

~~2) report to the appropriate authorities of the State of the Operator and the State in which it occurred any:~~

~~i) occasions when undeclared or misdeclared dangerous goods are discovered in cargo or mail; and~~

~~ii) dangerous goods accidents and incidents;~~

~~3) report to the appropriate authorities of the State of the Operator and the State of Origin any occasions when dangerous goods are discovered to have been carried;~~

~~i) when not loaded, segregated, separated or secured in accordance with the Technical Instructions, Part 7, Chapter 2; and~~

~~ii) without information having been provided to the pilot-in-command;~~

~~4) accept, handle, store, transport, load and unload dangerous goods, including COMAT classified as dangerous goods as cargo on board an aircraft; and~~

~~5) provide the pilot-in-command with accurate and legible written or printed information concerning dangerous goods that are to be carried as cargo~~.

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Origin:	*Rationale:*
DGP-WG/Annex 18	The amendments to 14.2 and 14.3 are proposed to replace detailed provisions that are contained in Annex 18 with references to Annex 18 and to align with language used in Annex 18. Proposed amendments to Annex 18 include a restructuring of the chapter on the operator's responsibilities that aligns with this structure, making it easy to refer to the provisions in Annex 18.

PART III INTERNATIONAL OPERATIONS - HELICOPTERS

CHAPTER 12. DANGEROUS GOODS

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12.2 STATE RESPONSIBILITIES

Note 1.— Annex 18, Chapter 2, contains requirements for each State to take the necessary measures to achieve compliance with the detailed provisions contained in the Technical Instructions.

Note 2.— Operator responsibilities for the transport of dangerous goods are contained in Chapter~~s~~ ~~8~~6, 9 and 10 of Annex 18. Part 7 of the Technical Instructions contains the operator's responsibilities ~~and requirements for incident and accident reporting~~.

~~*Note 3.— Annex 18, Chapter 11 contains requirements for each Contracting State to establish oversight procedures for all entities (including packers, shippers, ground handling agents and operators) performing dangerous goods functions.*~~

Note ~~4~~3.— The requirements pertaining to crew members or passengers carrying dangerous goods on aircraft are set forth in Part 8;1, of the Technical Instructions.

Note ~~5~~4.— Operator material (COMAT) that meets the classification criteria of the Technical Instructions for dangerous goods are considered cargo and must be transported in accordance with Part 1;2;2.2 of the Technical Instructions (e.g. aircraft parts such as chemical oxygen generators, fuel control units, fire extinguishers, oils, lubricants and cleaning products).

Origin:	*Rationale:*
DGP-WG/Annex 18	The amendments in Note 2 are editorial amendments to references to reflect the new proposed structure of Annex 18. Note 3 is proposed for deletion as the provisions it refers to in Annex 18 are proposed for deletion.

12.3 OPERATORS WITH NO SPECIFIC APPROVAL FOR THE TRANSPORT OF DANGEROUS GOODS AS CARGO

The State of the Operator shall ensure that operators with no specific approval to transport dangerous goods have:

a) established a dangerous goods training programme that meets the requirements of Annex 18~~, the applicable requirements of the Technical Instructions, Part 1;4~~, Chapter 9 and the requirements of the State's regulations, as appropriate. Details of the dangerous goods training programme shall be included in the operators' operations manuals; and

b) established dangerous goods ~~policies and~~ procedures, instructions and guidance in their operations manuals ~~to meet,~~ for personnel executing, at a minimum, the requirements of Annex 18, Chapter 6, 6.2, the Technical Instructions and the State's regulations. ~~to allow operator personnel to:~~

~~1) identify and reject undeclared dangerous goods, including COMAT classified as dangerous goods; and~~

~~2) report to the appropriate authorities of the State of the Operator, and the State in which it occurred, any:~~

~~i) occasions when undeclared dangerous goods are discovered in cargo or mail; and~~

~~ii) dangerous goods accidents and incidents.~~

12.4 OPERATORS WITH A SPECIFIC APPROVAL FOR THE TRANSPORT OF DANGEROUS GOODS AS CARGO

12.4.1 Overview

The State of the Operator shall issue a specific approval for the transport of dangerous goods and ensure that the operator:

a) establishes a dangerous goods training programme that meets the requirements ~~in the Technical Instructions, Part 1;4,~~ of Annex 18, Chapter 9 and the requirements of the State regulations, as appropriate. Details of the dangerous goods training programme shall be included in the operator's operations manuals;

b) establishes dangerous goods ~~policies and~~ procedures, instructions and guidance in its operations manual ~~to meet,~~ for personnel executing, at a minimum, the requirements of Annex 18, Chapter 6, 6.3, the Technical Instructions and the State's regulations. ~~to enable operator personnel to:~~

~~1) identify and reject undeclared or misdeclared dangerous goods in cargo or mail, including COMAT classified as dangerous goods;~~

~~2) report to the appropriate authorities of the State of the Operator, and the State in which it occurred, any:~~

~~i) occasions when undeclared or misdeclared dangerous goods are discovered in cargo or mail; and~~

~~ii) dangerous goods accidents and incidents;~~

~~3) report to the appropriate authorities of the State of the Operator any occasions when dangerous goods are discovered to have been carried:~~

~~i) when not loaded, segregated, separated or secured in accordance with the Technical Instructions, Part 7;2; and~~

~~ii) without information having been provided to the pilot-in-command;~~

~~4) accept, handle, store, transport, load and unload dangerous goods, including COMAT classified as dangerous goods as cargo on board an aircraft; and~~

~~5) provide the pilot-in-command with accurate and legible written or printed information concerning dangerous goods that are to be carried as cargo;~~

~~i) for helicopter operations, with the approval of the State of the Operator, the information provided to the pilot-in-command may be abbreviated or briefed by other means (e.g. radio communication, as part of the working flight documentation such as a journey log or operational flight plan) where circumstances make it impractical to produce written or printed information or a dedicated form (see the Supplement to the Technical Instructions for the Safe Transport of Dangerous Goods by Air (Doc 9284SU), Part S-7;4.8).~~

Origin:	*Rationale:*
DGP-WG/Annex 18	The amendments to 12.3 and 12.4 are proposed to replace detailed provisions that are contained in Annex 18 with references to Annex 18 and to align with language used in Annex 18. Proposed amendments to Annex 18 include a restructuring of the chapter on the operator's responsibilities that aligns with this structure, making it easy to refer to the provisions in Annex 18.

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PART IV INTERNATIONAL OPERATIONS - REMOTELY PILOTED AIRCRAFT SYSTEMS

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CHAPTER 14. DANGEROUS GOODS

14.1 STATE RESPONSIBILITIES

~~Note 1.— Annex 18, Chapter 11, contains requirements for each Contracting State to establish oversight procedures for all entities (including packers, shippers, ground handling service provider and operators) performing dangerous goods functions.~~

Note ~~2~~1.— Operator responsibilities for the transport of dangerous goods are contained in Chapter~~s 8, 9 and 10~~ 6 of Annex 18. Part 7 of the Technical Instructions for the Safe Transport of Dangerous Goods by Air (Doc 9284) (Technical Instructions) contains the operator's responsibilities and requirements for incident and accident reporting.

Note ~~3~~2.— Operator material (COMAT) that meets the classification criteria of the Technical Instructions for dangerous goods are considered cargo and must be transported in accordance with Part 1; 2.2.2 or Part 1; 2.2.3 of the Technical Instructions (e.g. aircraft parts such as lithium ion batteries, lithium metal batteries, chemical oxygen generators, fuel control units, fire extinguishers, oils, lubricants, cleaning products).

Note ~~4~~3.— See also Chapter 15 regarding cargo compartment safety.

14.2 GENERAL

Transport of dangerous goods as cargo on board RPA shall not be permitted unless the State of the Operator has issued a specific approval.

14.3 OPERATORS WITH NO SPECIFIC APPROVAL FOR THE TRANSPORT OF DANGEROUS GOODS AS CARGO

The State of the Operator shall ensure that operators with no specific approval to transport dangerous goods have:

a) established a dangerous goods training programme that meets the requirements of Annex 18~~, the applicable requirements of Technical Instructions, Part 1, Chapter 4~~, Chapter 9, and the requirements of the State's regulations, as appropriate. Details of the dangerous goods training programme shall be included in the operator's operations manuals;

b) established dangerous goods ~~policies and~~ procedures, instructions and guidance in its operations manual ~~to meet~~ for personnel executing, at a minimum, the requirements of Annex 18, Chapter 6, 6.2, the Technical Instructions and the State's regulations. ~~to allow operator personnel to:~~

~~1) identify and reject undeclared dangerous goods, including COMAT classified as dangerous goods;~~

~~2) report to the appropriate authorities of the State of the Operator and the State in which it occurred any:~~

~~i) occasions when undeclared dangerous goods are discovered in cargo or mail; and~~

~~ii) dangerous goods accidents and incidents.~~

14.4 OPERATORS WITH A SPECIFIC APPROVAL FOR THE TRANSPORT OF DANGEROUS GOODS AS CARGO

The State of the Operator shall issue specific approval for the transport of dangerous goods and ensure that the operator:

a) establishes a dangerous goods training programme that meets the requirements of Annex 18~~, the Technical Instructions, Part 1, Chapter 4~~, Chapter 9 and the requirements of the State regulations, as appropriate. Details of the dangerous goods training programme shall be included in the operator's operations manuals;

b) establishes dangerous goods ~~policies and~~ procedures, instructions and guidance in its operations manual ~~to meet,~~ for personnel executing, at a minimum, the requirements of Annex 18, Chapter 6, 6.3, the Technical Instructions and the State's regulations. ~~to enable operator personnel to;~~

~~1) identify and reject undeclared or misdeclared dangerous goods, including COMAT classified as dangerous goods;~~

~~2) report to the appropriate authorities of the State of the Operator and the State in which it occurred any:~~

~~i) occasions when undeclared or misdeclared dangerous goods are discovered in cargo or mail; ii) dangerous goods accidents and incidents;~~

~~3) report to the appropriate authorities of the State of the Operator and the State of Origin any occasions when dangerous goods are discovered to have been carried;~~

~~i) when not loaded, segregated, separated or secured in accordance with Technical Instructions, Part 7, Chapter 2;~~

~~ii) without information having been provided to the remote pilot-in-command;~~

~~4) accept, handle, store, transport, load and unload dangerous goods, including COMAT classified as dangerous goods as cargo on board an RPA;~~

~~5) provide the remote pilot-in-command with accurate information concerning dangerous goods that are to be carried as cargo in the format required in Annex 18 and the Technical Instructions; and~~

~~6) notify emergency services at the scene of an incident or accident of the information provided to the remote pilot on the NOTOC.~~

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APPENDIX F

SUMMARIZED OUTCOME OF DISCUSSIONS

WP No.	FL No.	IP No.	Title	Presented by	Outcome
1	5		Guidance on What Constitutes "Personal Use' in the Context of Permitted Items in Passenger and Crew Baggage	the Dangerous Goods Advisory Council (DGAC)	Revised proposal agreed.
2			Procedures for the Classification of Explosives	E. Gillett	Not agreed. New proposal for DGP/30.
3			Report of the ICAO DGP Working Group on Training	T. Muller	Discussed. Support for new job card in principle, revisions to be circulated to panel for final approval.
4			Report of the ICAO DGP Task Force on Mobility Aids	T. Muller	Discussed. Terms of reference and action plan agreed in principle, editorial amendments to be circulated among panel members for approval.
5	2		Quantity of Dangerous Goods, Number and Type of Packagings to be Stated on the Dangerous Goods Transport Document	E. Gillett	Revised amendment agreed.
6	4		Low Production Run Cells and Batteries: Harmonization of Text Between 2;0.6.2 and Special Provision A88	L. Cascardo	Revised amendment agreed.
7			Use of Flamethrower RPAS to Provide Maintenance to Power Transmission Lines	L. Cascardo	Discussed. Subject to be revisited once the DGP-WG/RPAS delivered its recommendations.
8			Harmonization of Terminology: Future Proposals	L. Cascardo	Discussed. Work over next biennium to standardize based on feedback provided.
9			Harmonization of Terminology: Passengers and Crew	L. Cascardo	Revised amendment agreed.
10			Harmonization of Terminology: Packing Instructions 965 and 966	L. Cascardo	Agreed.

WP No.	FL No.	IP No.	Title	Presented by	Outcome
11			Draft Amendments to Part 1 of the Technical Instructions to Align with the UN Recommendations	the Secretary	— Update edition numbers in definitions for "GHS", "Manual of Tests and Criteria" and "Model Regulations" — Remove definition for "usable water capacity" — Members to further review amendments and provide comments to Rapporteur of DGP-WG/UN Harmonization preferably before end of June 2025 — Final proposal to DGP/30
12			Draft Amendments to Part 2 of the Technical Instructions to Align with the UN Recommendations	the Secretary	— Members to further review amendments and provide comments to Rapporteur of DGP-WG/UN Harmonization, preferably before end of June 2025 — Final proposal to DGP/30

WP No.	FL No.	IP No.	Title	Presented by	Outcome
13			Draft Amendments to Part 3 of the Technical Instructions to Align with the UN Recommendations	the Secretary	— Delete cross references to **Fluoroanilines** in Table 3-1 — Delete Special Provision A226 and remove assignment to entries in Table 3-1 — Add "UN 3564" before **Sodium ion batteries installed in cargo transport unit** in Special Provision A214 (fourth to last paragraph) — Editorial revision to new Special Provision A238, i.e. delete "the limit of" — Members to further review amendments and provide comments to Rapporteur of DGP-WG/UN Harmonization, preferably before end of June 2025 — Final proposal to DGP/30

WP No.	FL No.	IP No.	Title	Presented by	Outcome
14			Draft Amendments to Part 4 of the Technical Instructions to Align with the UN Recommendations	the Secretary	— Add note excepting button cells when they are in addition to cells or batteries contained in equipment from number of cells or batteries under which battery mark is not required to Packing Instructions 978 — Members to further review amendments and provide comments to Rapporteur of DGP-WG/UN Harmonization preferably before end of June 2025 — Final proposal to DGP/30
15			Draft Amendments to Part 5 of the Technical Instructions to Align with the UN Recommendations	the Secretary	— Members to further review amendments and provide comments to Rapporteur of DGP-WG/UN Harmonization preferably before end of June 2025 — Final proposal to DGP/30
16			Draft Amendments to Part 6 of the Technical Instructions to Align with the UN Recommendations	the Secretary	— Members to further review amendments and provide comments to Rapporteur of DGP-WG/UN Harmonization preferably before end of June 2025 — Final proposal to DGP/30

WP No.	FL No.	IP No.	Title	Presented by	Outcome
19			Draft Amendments to Attachment 1 to the Technical Instructions to Align with the UN Recommendations	the Secretary	— Members to further review amendments and provide comments to Rapporteur of DGP-WG/UN Harmonization preferably before end of June 2025 — Final proposal to DGP/30
20			Draft Amendments to the Supplement to the Technical Instructions to Align with the UN Recommendations	the Secretary	— Members to further review amendments and provide comments to Rapporteur of DGP-WG/UN Harmonization preferably before end of June 2025 — Final proposal to DGP/30
21			Amendments to the Drill Codes in the Emergency Response Guidance to Reflect Amendments to the Dangerous Goods List Made to Align with the UN Model Regulations	the Secretary	— Replace "10PC" with "10CP" for UN Nos. 1040 and 3300 — Members to further review amendments and provide comments to Rapporteur of DGP-WG/UN Harmonization preferably before end of June 2025 — Final proposal to DGP/30
22			Harmonization of Terminology: Approval or Specific Approval	L. Cascardo	Agreed in principle pending approval of precise wording to ensure alignment with Annex 6 terminology.
23			Duplication of Definitions	D. Sylvestre	Agreed.
24			Number of Spare Fuel Cell Cartridges Applicablec to Packing Instruction 497	L. Cascardo	Agreed.
25	3		Recommended maximum net quantity per article / package for articles consigned under A2 approvals	E. Gillett	Revised proposal agreed.

WP No.	FL No.	IP No.	Title	Presented by	Outcome
26			Dangerous Goods Provisions to Support Remotely Piloted Aircraft Systems	M. Ranito	Discussed. Noted progress with appreciation. Members to provide further feedback to the Rapporteur of DGP-WG/RPAS by 30 June 2025.
27			Inadvertent Omission of Requirements Applicable to Unpacakaged Articles	DGAC	Agreed there is a potential legal gap. Proposal for DGP/30.
28			Illicit Substances under chain of Custody by Law Enforcement Agencies	S. Bitossi	Discussed. New proposal for DGP/30.
29			Availability of the Technical Instructions to all Parties in the Transport Chain	T. Muller	Discussed.
30			Challenges in the Supply Chain for Air Transport Of Dangerous Goods	T. Muller	Discussed. Guidance material to be considered, and potential new SARP specifying that entities can contract functions to third parties but they retain responsibility.
31			Proposal for Modifying the UN Marking Format for Category A Infectious Substances (UN 2814 and UN 2900)	N. Kumar	Not agreed. Potential new proposal providing clarification in a note.
32			Harmonization of Provisions for Lithium-Ion and Lithium-Polymer Batteries Packed With or Contained in Equipment Under Section I Of Packing Instructions 966 and 967	N. Kumar	Not agreed.
33			Proposal for the Standardization of Documentation in the Transportation of Dangerous Goods	N. Kumar	Not agreed. Potential new guidance supporting States in managing the risk.
34			Scope of Specific Approval to Transport Dangerous Goods Granted to the Air Operator	The Secretary	Discussed.
35			Special Provisions A1 And A2 And The Scope Of The Supplement To The Technical Instructions	T. Muller	Discussed. DGP-WG/Supplement will study original intent and develop appropriate guidance material.

WP No.	FL No.	IP No.	Title	Presented by	Outcome
		1	Dangerous Goods Provisions to Support Remotely Piloted Aircraft Systems – Guidance for the Carriage of Dangerous Goods Transported by Unmanned Aircraft Extracted from ICAO Advisory Circular AC 102 37 Associated with Part 102 of the ICAO Model UAS Regulations	the Rapporteur of the DGP-WG Dangerous Goods Provisions to Support RPAS Operations – M. Ranito	Noted.
		2	Dangerous Goods Provisions to Support Remotely Piloted Aircraft Systems: Principles on which the Development of Annex 6, Part IV was Based	the Rapporteur of the DGP-WG Dangerous Goods Provisions to Support RPAS Operations – M. Ranito	Noted.
		3	Dangerous Goods Provisions to Support Remotely Piloted Aircraft Systems – Feedback to DGP-WG/18, Draft Amendments to the Technical Instructions under Development and Draft Guidance Material	the Rapporteur of the DGP-WG Dangerous Goods Provisions to Support RPAS Operations – M. Ranito	Noted. Members to provide further feedback to the Rapporteur of DGP-WG/RPAS by 30 June 2025.
		4	Amendment to Annex 18 to Clarify States' Responsibilities with Respect to the Safe Transport of Dangerous	the Secretary	Discussed.
		5	Report of the Dangerous Goods Panel Working Group on Energy Storage Devices (DGP-WG/Energy Storage Devices)	D. Pfund	Discussed. Noted progress with appreciation.
		6	Update on the development of a hazard-based classification system for lithium batteries by the UN informal working group on hazard-based classification of lithium batteries and cells	the Secretary	Discussed. Additional comments to be provided to the Secretary.
		7	Proposed amendment to delete the definitions of passenger aircraft and cargo aircraft	D. Schlichting	Discussed. New proposal for DGP/30.
		8	Lithium Battery Related Cabin Fire Risks – An Emerging Safety Issue in The Republic of Korea	S. Kang	Discussed. Noted the information provided with appreciation. Further discussions at DGP/30.

WP No.	FL No.	IP No.	Title	Presented by	Outcome
		9	Update on research related to lithium batteries conducted by the European Union Aviation Safety Agency	L. Calleja Barcena	Discussed. Noted with appreciation.

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