



Committee of Experts on the Transport of Dangerous Goods and on the Globally Harmonized System of Classification and Labelling of Chemicals

Sub-Committee of Experts on the Transport of Dangerous Goods

Report of the Sub-Committee of Experts on the Transport of Dangerous Goods on its sixty-fourth session

Held at the Palais des Nations, Geneva, 24 June-3 July 2024

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Annexes

- I. Draft amendments to the eighth revised edition of the Manual of Tests and Criteria (ST/SG/AC.10/11/Rev.8)¹
- II. Draft amendments to the twenty-third revised edition of Recommendations on the Transport of Dangerous Goods, Model Regulations (ST/SG/AC.10/1/Rev.23)¹
- III. Corrections to the twenty-third revised edition of the Recommendations on the Transport of Dangerous Goods, Model Regulations (ST/SG/AC.10/1/Rev.23)¹
- IV. Modifications to the seventh version of the Guiding Principles for the Development of the Model Regulations on the Transport of Dangerous Goods [English only]¹

¹ For practical reasons, these annexes have been published as an addendum with the symbol ST/SG/AC.10/C.3/128/Add.1.

I. Attendance

1. The Sub-Committee of Experts on the Transport of Dangerous Goods held its sixty-fourth session from 24 June to 3 July 2024 with Mr. Duane Pfund (United States of America) as Chair and Mr. Remko Dardenne (Belgium) as Vice-Chair.
2. Experts from the following countries took part in the session: Argentina, Australia, Austria, Belgium, Canada, China, Finland, France, Germany, Italy, Japan, the Kingdom of the Netherlands (Netherlands), Poland, Portugal, Republic of Korea, Russian Federation, South Africa, Spain, Sweden, Switzerland, United Kingdom of Great Britain and Northern Ireland (United Kingdom) and United States of America.
3. Under rule 72 of the rules of procedure of the Economic and Social Council, observers from Latvia, Luxembourg, Slovakia and Zimbabwe also took part.
4. Representatives of the Intergovernmental Organization for International Carriage by Rail (OTIF) also attended.
5. Representatives of the Food and Agriculture Organization (FAO), the International Civil Aviation Organization (ICAO), the International Maritime Organization (IMO), the United Nations Environment Programme (UNEP) and the World Health Organization (WHO) were also present.
6. Representatives of the following non-governmental organizations took part in the discussion on items of concern to those organizations: Australasian Explosives Industry Safety Group (AEISG), Compressed Gas Association (CGA), Council on Safe Transportation of Hazardous Articles (COSTHA), Dangerous Goods Advisory Council (DGAC), Dangerous Goods Trainers Association (DGTA), European Association for Advanced Rechargeable Batteries (RECHARGE), European Chemical Industry Council (Cefic), European Confederation of Fuel Distributors (ECFD), European Industrial Gases Association (EIGA), European Aerosol Federation (FEA), The Grain and Feed Trade Association (Gafta), Institute of Makers of Explosives (IME), International Air Transport Association (IATA), International Confederation of Plastics Packaging Manufacturers (ICPP), International Council of Intermediate Bulk Container Associations (ICIBCA), International Dangerous Goods & Containers Association (IDGCA), International Organization for Standardization (ISO), Medical Devices Transport Council (MDTC), PRBA — The Rechargeable Battery Association, Responsible Packaging Management Association of Southern Africa (RPMASA), Sporting Arms and Ammunition Manufacturers' Institute (SAAMI), World Coatings Council (WCC), and World Liquid Gas Association (WLGGA).

II. Opening of the session

Changes in the secretariat

7. Mr. Dmitry Mariyasin, Deputy Executive Secretary of UNECE and officer in charge of the Sustainable Transport Division, informed the Sub-Committee that Mr. Yuwei Li recently took his retirement. Mr. Mariyasin underlined the global importance of the work of the ECOSOC subcommittees and congratulated them for the recurrent publications of the *Model Regulations*, the *Manual of Tests and Criteria* and the *Globally Harmonized System of Classification and Labelling of Chemicals (GHS)*. He indicated that UNECE Sustainable Transport Division and also the Dangerous Goods Section were currently suffering from the constraints of the still ongoing United Nations liquidity crisis and he hoped that by the end of this year the situation would return back to the usual status and that all vacant posts would be filled again.
8. Mr. Mariyasin also informed the Sub-Committee that UNECE has recently endured some copyright infringements and that, pending the issuance of detailed guidance, the unauthorized use of images, or any other copyrighted material without prior and appropriate consent of the copyright owner is strictly forbidden and contrary to the rules and regulations

of the Organization. Thus, he invited all experts, when submitting their proposals, not to include unauthorized images or any other copyrighted material without prior and appropriate consent of the copyright owner.

Organizational matters

Informal document: INF.3 (Secretariat)

9. The sixty-fourth session of the Sub-Committee was held from 24 June to 3 July 2024, in an in-person format, following the time table as proposed in informal document INF.3.

10. Upon the request of the Division of Conference Management (DCM) of the United Nations Office at Geneva, the Sub-Committee was invited to take an online survey on the quality of conference services provided at the session by using the QR code shown at the conference room entrance.

III. Adoption of the agenda (agenda item 1)

Documents: ST/SG/AC.10/C.3/127 (Provisional agenda)
ST/SG/AC.10/C.3/127/Add.1 (List of documents)

Informal documents: INF.1 and INF.2 (List of documents)
INF.35 (Reception by NGOs)

11. The Sub-Committee adopted the provisional agenda prepared by the secretariat after amending it to take account of informal documents INF.1 to INF.72.

12. The Sub-Committee was also informed that the OTIF and UNECE secretariats were in the process of finalizing the publications of the new 2025 editions of the RID, ADR and ADN which are expected to be published before the end of 2024.

IV. Explosives and related matters (agenda item 2)

13. After preliminary consideration in plenary, all documents under agenda items 2 and 10 (c) as listed in informal document INF.2 were referred to the Explosives Working Group (EWG), which met from 24 to 27 June 2024 under the chairmanship of Mr. M. Sime (United Kingdom).

14. The Sub-Committee requested the EWG to also consider working documents ST/SG/AC.10/C.3/2024/1, ST/SG/AC.10/C.3/2024/23 as well as informal documents INF.39, INF.40 and INF.50 (listed under item 3).

Report of the Explosives Working Group

Informal document: INF.67 (Chair of the EWG)

15. The Sub-Committee considered the report of the EWG in informal document INF.67 and heard the explanations provided by its chairperson.

16. The Sub-Committee concluded the discussion as reflected in paragraphs 18 to 31 below.

17. It was pointed out that the feedback by the EWG on documents ST/SG/AC.10/C.3/2024/1, ST/SG/AC.10/C.3/2024/23 as well as on informal documents INF.39, INF.40 and INF.50 was provided to the plenary of the Sub-Committee (see paragraphs 32, 42, 56, 57 and 60 below).

A. Review of test series 6

18. As no document had been submitted under this agenda sub-item, no discussion took place on this subject.

B. Improvement of test series 8

1. Amendments to UN 8(e) (minimum burning pressure) test

Document: ST/SG/AC.10/C.3/2024/8 (Japan)

Informal documents: INF.32 (United Kingdom)
INF.67, para. 5 (Chair of the EWG)

19. Following the recommendation by the EWG, the Sub-Committee adopted the amendments to the *Manual of Tests and Criteria* in paragraphs 19 and 20 of document ST/SG/AC.10/C.3/2024/8 and the alternative proposals in paragraphs 2 and 3 of informal document INF.32 as amended (see annex I).

2. Proposal to review the requirement of test series 8 for assessing suitability of ammonium nitrate emulsions for transport in portable tanks

Informal documents: INF.21 (AEISG, IME)
INF.67, para. 6 (Chair of the EWG)

20. The Sub-Committee endorsed the recommendation of the EWG.

C. Review of tests in parts I, II and III of the Manual of Tests and Criteria

Informal documents: INF.20 (United Kingdom, United States of America)
INF.67, para. 7 (Chair of the EWG)

21. The Sub-Committee noted the support of the EWG and the information that the authors will prepare an official document for consideration at the next session.

D. “UN” standard detonators

22. As no document had been submitted under this agenda sub-item, no discussion took place on this subject.

E. Energetic samples

Document: ST/SG/AC.10/C.3/2024/26 (Cefic)

Informal document: INF.67, para. 8 (Chair of the EWG)

23. The Sub-Committee adopted the amendment in document ST/SG/AC.10/C.3/2024/26 (see annex I).

F. Review of packaging and transport requirements for ammonium nitrate emulsions

24. As no document had been submitted under this agenda sub-item, no discussion took place on this subject.

G. Electrification and alternative fuels and how they will affect transport of explosives

25. As no document had been submitted under this agenda sub-item, no discussion took place on this subject.

H. Miscellaneous

1. Screening procedures for estimating the self-accelerating decomposition temperature of 50 kg packages

Document: ST/SG/AC.10/C.3/2024/16 (Cefic)

Informal documents: INF.54 (Cefic)
INF.67, para. 9 (Chair of the EWG)

26. The Sub-Committee adopted the amendments to the *Manual of Tests and Criteria* as modified (see annex I).

2. UN 0012 and UN 0014 - Metal on metal contact between explosives and packaging

Document: ST/SG/AC.10/C.3/2024/18 (SAAMI)

Informal document: INF.67, para. 10 (Chair of the EWG)

27. The Sub-Committee adopted the amendments to the *Model Regulations* proposed in option 2 as modified (see annex II).

3. Termination time and method of assessing results for methyl violet paper test in appendix 10 of the Manual of Tests and Criteria

Document: ST/SG/AC.10/C.3/2024/38 (China)

Informal documents: INF.33 (United Kingdom)
INF.67, para. 11 (Chair of the EWG)

28. The Sub-Committee adopted the amendments to A10.3.4.4 of the *Manual of Tests and Criteria* in option 2 of proposal 2 of informal document INF.33, as modified (see annex I).

4. Report of the informal correspondence group on the revision of subsection 51.4 of the Manual of Tests and Criteria regarding the burning rate

Document: ST/SG/AC.10/C.3/2024/41 (China on behalf of the Informal Correspondence group (ICG))

Informal documents: INF.5 (China on behalf of the ICG)
INF.67, para. 12 (Chair of the EWG)

29. The Sub-Committee recognized the outcome of the discussions in the EWG on the proposed amendments to the *Manual of Tests and Criteria*. It was agreed to resume discussion at a future session based on a refined proposal.

5. Corrections and amendments to the Model Regulations, the Globally Harmonized System and the Manual of Tests and Criteria

Document: ST/SG/AC.10/C.3/2024/52 (AEISG)

Informal document: INF.67, para. 13 (Chair of the EWG)

30. The Sub-Committee endorsed the recommendations of the EWG on the corrections to the *Model Regulations* and the *Manual of Tests and Criteria* in paragraphs 4, 9, 12, 16 and 18 in document ST/SG/AC.10/C.3/2024/52, as amended (see annexes I and II). On the proposal regarding the reference to UN gap test in part III of document ST/SG/AC.10/C.3/2024/52, the Sub-Committee noted that, following the outcome of the discussions by the EWG, AEISG would consider submitting a revised proposal in the future.

31. The Sub-Committee also endorsed the recommendation by the EWG on the proposed correction to the *GHS* as proposed in paragraph 6 of document ST/SG/AC.10/C.3/2024/52.

V. Listing, classification and packing (agenda item 3)

A. Packing group II metal packagings for organic peroxides and self-reactive substances

Document: ST/SG/AC.10/C.3/2024/1 (Cefic)

Informal document: INF.67, para. 14 (Chair of the EWG)

32. Following the outcome of the discussions in the EWG, the representative of Cefic withdrew document ST/SG/AC.10/C.3/2024/1 and offered to come back with an improved proposal at the next session.

B. Considering invasive alien species as environmental hazardous living organisms

Document: ST/SG/AC.10/C.3/2024/2 (Secretariat of the Convention on Biological Diversity)

33. Some experts acknowledged the existing risks of invasive alien species as environmentally hazardous living organisms and highlighted the regional character of the issue. They considered that this Sub-Committee might not be the ideal body to address this problem. The proposal should therefore be addressed at national or regional level through other regional forums or trade conventions. Others requested more detailed information on a list of species concerned and recommended differentiating between intended safe transport on one hand and accidental/unintended carriage of such species on the other hand. Some experts raised concerns about the challenges in the harmonisation of the proper classification of such species as such criteria could vary largely among the different regions in the world. One expert pointed out that the risks associated with invasive alien species are not considered as imminent and that therefore this would not fit well into the current framework of the *Model Regulations*.

34. The Secretariat of the Convention on Biological Diversity offered to report back in October 2024 to the Conference of the Parties and to come back, if necessary, with a more detailed proposal.

C. Clarification of the indicative list of category A infectious substances

Document: ST/SG/AC.10/C.3/2024/7 (Canada, WHO)

Informal documents: INF.58/Rev.1 (Canada, WHO)
INF.68/Rev.1 (Secretariat)

35. The Sub-Committee reiterated that the indicative list was a non-exhaustive list of examples and agreed to convert existing note 2, with an additional sentence, into regulatory text to reinforce this notion. To address some concerns raised by the Sub-Committee, including a preference to not mention specific organizations in the regulatory text, Canada and WHO produced a revised proposal. After further discussion, the Sub-Committee adopted document ST/SG/AC.10/C.3/2024/7 as amended by informal document INF.58/Rev.1 (see annex II).

36. Informal document INF.68/Rev.1 introduced additional editorial amendments to section 2.6.3.2.2 which were adopted in square brackets. Delegations were invited to review the amendments proposed in informal document INF.68/Rev.1 and send any comments to the secretariat.

D. Entries for seed cake, UN 1386 and UN 2217

Document: ST/SG/AC.10/C.3/2024/10 (Gafta)

Informal document: INF.25 (Gafta)

37. The Sub-Committee welcomed the multimodal harmonization efforts proposed in document ST/SG/AC.10/C.3/2024/10, as amended by informal document INF.25. Given the complexity of the potential hazards of seed cakes and to ease future discussion, Gafta was invited to provide more detailed data on the seeds concerned and their properties, in particular on parameters such as saturated or unsaturated oil, moisture and residual solvent.

38. On the need to clarify special provision 142 with respect to “substantially free of flammable solvent”, the representative of Gafta volunteered to come up at the next session with a proposal based on the usual practice.

E. Transport of liquid organic hydrogen carrier - New special provision to UN 3082

Document: ST/SG/AC.10/C.3/2024/17 (Germany)

39. The proposal received general support. Most experts acknowledged the large potential in the proposal for the transport of hydrogen but raised concern about the limited scope of only one carrier. Some welcomed this pragmatic approach and expressed a general openness to go forward with the proposal as a starting point. They felt that more work was needed in future to broaden the approach to other possible carriers of hydrogen. Others preferred to go forward with a new UN number for such hydrogen carriers.

40. The expert from Germany offered to review the proposal taking into account the comments received and to resubmit a new document for the next session.

F. Modification of the limited quantity for UN 2956 MUSK XYLENE

Document: ST/SG/AC.10/C.3/2024/22 (Germany)

Informal document: INF.62 (Germany)

41. The Sub-Committee adopted the amendments to the *Model Regulations* in document ST/SG/AC.10/C.3/2024/22, as well as the amendment to the *Guiding Principles* in informal document INF.62 (see annexes II and IV).

G. Wearable airbag system

Document: ST/SG/AC.10/C.3/2024/23 (Italy)

Informal document: INF.67, para. 15 (Chair of the EWG)

42. The Sub-Committee noted the feedback by the EWG and recognized Italy’s intent to harmonize efforts on how to apply the classification of wearable airbag systems. It agreed on the urgent need to clarify the provisions of the *Model Regulations*. After discussion, the expert from Italy invited all interested experts to send by email their written comments and offered to submit for the next session an official document summarizing the findings, including a proposal for amendments and guidance for classification.

H. Refrigerating machines or heating machines

Document: ST/SG/AC.10/C.3/2024/27 (Germany)

Informal document: INF.63 (Germany)

43. The Sub-Committee adopted the amendments proposed in paragraphs 4, 5 and 6 of informal document INF.63 (see annex II).

I. Transport provisions for small quantities of environmentally hazardous paints, printing inks, and related materials

Document: ST/SG/AC.10/C.3/2024/31 (WCC)

Informal documents: INF.7 (WCC) and INF.59 (WCC)

44. The Sub-Committee noted several comments on the four options presented but did not support either option proposed in document ST/SG/AC.10/C.3/2024/31. It noted a general preference for a generic solution. The expert from WCC invited all interested experts to send him further written comments or guidance on the best way forward. He volunteered to submit a new proposal for consideration at the next session and to take account of the feedback received.

J. Magnetic resonance imaging scanners

Document: ST/SG/AC.10/C.3/2024/32 (Netherlands)

45. In view of the fact that these devices are robustly designed and transported with great care, the Sub-Committee adopted the amendments proposed in paragraphs 7 and 8 of document ST/SG/AC.10/C.3/2024/32, as modified (see annex II).

K. Facilitation of the shipment of external quality assessment, proficiency and re-testing samples

Document: ST/SG/AC.10/C.3/2024/33 (WHO)

46. Most experts felt that more clarification was needed on the intent of the proposal and suggested WHO to report on concrete examples of the issue being discussed. It was agreed that the existing text of 2.6.3.2.3.3 was clear enough to exempt the transport of such samples from the provisions of the *Model Regulations* and that, if a virus was inactivated, the virus name should not appear on the documentation nor on the packaging. The Sub-Committee recommended that improved training could be the best solution to resolve this real world problem.

L. Classification of butyl acrylates, stabilized

Document: ST/SG/AC.10/C.3/2024/37 (China)

47. The Sub-Committee adopted proposal 2 in document ST/SG/AC.10/C.3/2024/37. Several delegations raised concerns about the deletion of UN 2527 in proposal 1, considering that it has been well established in the industry to transport stabilized isobutyl acrylate under this entry and that the deletion of it would not add any benefit for safety. After an exchange of views, the expert from China offered to work jointly with the representative of Cefic on this issue, and may come back with a new proposal, if necessary.

M. Classification of UN 2372 1, 2-DI-(DIMETHYLAMINO) ETHANE

Document: ST/SG/AC.10/C.3/2024/46 (Belgium)

48. The Sub-Committee agreed in principle on the proposal to add corrosivity as a subsidiary hazard for UN 2372. Some experts were of the opinion that the toxicity and corrosivity hazards needed further analysis and brought forward additional data. Some experts advised to be cautious about amending the codes of portable tanks, in particular if the assessment was not based on safety evidence. Following the discussion, the expert from Belgium withdrew his document and offered to work further with interested experts to draft a working document for the next session. On the proposal to amend the portable tank instruction, it was mentioned that an amendment to the *Guiding Principles*, while keeping the assigned tank code, could be an alternative approach.

N. Present and future products in the LPG industry - Addition of a new special provision to UN 1075 and UN 1965

Documents: ST/SG/AC.10/C.3/2024/48 (WLGA)
ST/SG/AC.10/C.3/2024/49 (WLGA)

Informal documents: INF.24 (United Kingdom)
INF.61 (WLGA)

49. The Sub-Committee noted the supporting information in document ST/SG/AC.10/C.3/2024/49 and adopted the amendments for UN Nos. 1075 and 1965 in document ST/SG/AC.10/C.3/2024/48 and informal document INF.24, as amended by proposal 2 in informal document INF.61 with additional modifications (see annex II).

O. Used medical devices containing lithium batteries

Document: ST/SG/AC.10/C.3/2024/51 (COSTHA)

Informal documents: INF.16 (MDTC) and INF.19 (COSTHA)

50. While some experts felt that the amendments proposed in document ST/SG/AC.10/C.3/2024/51 as modified by informal document INF.19 still need to be clarified, other experts preferred to keep the current provisions as these texts were clearer. It was underlined that UN 3373 was currently misused for used medical devices as the current provisions were not correctly applied or understood.

51. Following an exchange of views on informal document INF.16, the representative of MDTC withdrew the proposal. The representatives of COSTHA and MDTC offered to jointly prepare and resubmit new proposals for consideration at the next session.

P. Packing instruction P908 – Correction to the French text

Informal document: INF.11 (Secretariat)

52. The Sub-Committee adopted the proposed correction to the French version of the *Model Regulations* (see annex III) and requested the secretariat to inform the RID/ADR/ADN Joint Meeting accordingly.

Q. Proper shipping names of UN Nos. 0514 and 3559 in Russian

Informal document: INF.14 (Russian Federation)

53. The Sub-Committee took note of the corrections to be made to the Russian version and that these corrections would be sent to the translation services to be taken into account in a corrigendum to the *Model Regulations* and in the 2025 edition of RID/ADR/ADN.

R. Deletion of the entry UN 2941 FLUOROANILINES

Informal document: INF.36 (Germany)

54. The Sub-Committee noted general support on the intent of the proposal. It was agreed to continue the discussion at its next session on the basis of an official document by Germany. The expert from Germany invited all interested experts to send by email their written comments.

S. UN 3164 installed in equipment or apparatus

Informal document: INF.37 (COSTHA)

55. The Sub-Committee noted the purpose of the proposal. The representative of COSTHA invited all experts to respond by email on the three questions in paragraph 8 of the document. He volunteered to come back at the next session of the Sub-Committee with a proposal for amendments to the *Model Regulations*, if needed.

T. Informal correspondence group on polymerizing substances and self-accelerating polymerization temperature

Informal documents: INF.39 (Cefic)
INF.67, para. 16 (Chair of the EWG)

56. The Sub-Committee noted in informal document INF.67 the outcome of the EWG discussion and agreed to resume consideration of this subject at the next session.

U. Listing of artemisinin and derivatives in 2.5.3.2.4

Informal documents: INF.40 (China and Cefic)
INF.67, para. 17 (Chair of the EWG)

57. The Sub-Committee noted the outcome of the EWG on informal document INF.40 and the offer by the authors to work on an improved proposal for consideration at a future session.

V. Informal working group on the development of a comprehensive approach following reclassification of existing entries in the dangerous goods list

Informal document: INF.42 (Canada)

58. The Sub-Committee welcomed the outcome of the informal working group meeting, held virtually on 27 March 2024. It noted the conclusion in informal document INF.42 and recommended that the review of papers leading to the reclassification of existing entries in the Dangerous Goods List should be conducted comprehensively, holistically, and consistently.

W. Report from the correspondence group on the differentiation between UN 1950 and UN 2037

Informal document: INF.43 (Germany)

59. The Sub-Committee noted the report in informal document INF.43 and encouraged the group to continue its work. The invitation to participate in the correspondence group was extended to all interested experts, who should contact the expert from Germany.

X. Assignment of PP5 to UN 2029 hydrazine anhydrous

Informal documents: INF.50 (United States of America)
INF.67, para. 18 (Chair of the EWG)

60. The Sub-Committee acknowledged the recommendation by the EWG to withdraw the inclusion into the *Model Regulations* of special packing provision PP5 for UN 2029 hydrazine anhydrous. The expert from the United States of America volunteered to prepare an official document for the next session.

Y. Proposal to allow articles classified as UN 3363 to contain lithium batteries complying with special provision 188

Informal document: INF.53 (China)

61. The Sub-Committee noted the proposals in informal document INF.53. The expert from China invited all interested experts to send their comments on proposals 1 and 2 in the document to the email addresses outlined in paragraph 15 of the document.

VI. Electric storage systems (agenda item 4)

A. Testing of lithium batteries

1. Lithium ion batteries testing – Amendment to the T.5 short circuit test

Document: ST/SG/AC.10/C.3/2024/15 (RECHARGE)

62. Some experts raised concerns to exempt batteries of a certain design type equipped with non-removable protective parts against short circuit from the T.5 tests. It was recalled that the purpose of the T.5 short circuit test was to evaluate the effects of a short-circuit rather than determining whether a short circuit could occur or not. The representative of RECHARGE volunteered to prepare an improved proposal for the next session that would take account of the comments received.

2. Size of the flat surfaces in crush test procedure (test T.6)

Document: ST/SG/AC.10/C.3/2024/39 (China)

Informal document: INF.41 (United Kingdom)

63. The Sub-Committee adopted the amendments to the *Manual of Tests and Criteria* in document ST/SG/AC.10/C.3/2024/39, as amended by option 1 (a) in informal document INF.41 (see annex I).

3. Procedures for test T.8: Forced discharge

Document: ST/SG/AC.10/C.3/2024/40 (China)

64. Most experts felt it premature to take a decision on the proposal in document ST/SG/AC.10/C.3/2024/40 and that more data and work were needed. It was recommended to circulate the proposal to the members of the informal working group on the hazard-based classification of lithium batteries and cells for a more detailed consideration and advice.

4. Additional mitigation measures for the transport of lithium batteries

Document: ST/SG/AC.10/C.3/2024/45 (ICAO)

65. The Sub-Committee welcomed the initiative by the ICAO Dangerous Goods Panel as outlined in document ST/SG/AC.10/C.3/2024/45. Some delegates expressed concerns over capacity and resources to implement competent authority approval of test laboratories. Several experts expressed their interest in this challenging subject and offered to reach out to ICAO to further discuss and contribute to the questions raised in paragraph 3 of the document.

5. UN 38.3 Lithium battery testing and amendments to the T.5 external short circuit test

Document: ST/SG/AC.10/C.3/2024/54 (PRBA and RECHARGE)

Informal document: INF.65 (PRBA and RECHARGE)

66. The Sub-Committee adopted the proposal in document ST/SG/AC.10/C.3/2024/54 as amended by informal document INF.65 with additional modifications (see annex I).

6. Reuse, repair and re-purposing lithium-ion cells and batteries and implications on safety and UN 38.3 testing requirements

Document: ST/SG/AC.10/C.3/2024/55 (PRBA)

Informal documents: INF.47 (RECHARGE)
INF.64 (PRBA and RECHARGE)

67. Following a lunchtime meeting, it was agreed to further refine during intersessional ad hoc meetings the new text to section 38.3.2.2 proposed in informal document INF.64. The Sub-Committee welcomed the offer by PRBA to coordinate the intersessional meetings and to submit jointly with RECHARGE an official document for the next session. Interested experts were invited to contact the representative of PRBA.

7. UN 38.3 lithium battery test sequence clarification

Document: ST/SG/AC.10/C.3/2024/56 (PRBA)

68. Most experts raised concerns and preferred to keep the current sequence of tests T.1 to T.5. An expert noted that investigative work had shown that the order of the tests had an impact on the outcome.

8. UN 38.3 lithium battery test rupture definition

Document: ST/SG/AC.10/C.3/2024/57 (PRBA)

Informal document: INF.49 (PRBA)

69. Some experts felt that the proposed amendments needed to be clarified, others were of the opinion that there was no need to amend the definition. Due to the late submission of the informal document, the representative of PRBA offered to come back at the next session with a new official document.

B. Hazard-based system for classification of lithium batteries

Documents: ST/SG/AC.10/C.3/2024/13 (Belgium, France, RECHARGE on behalf of the IWG)
ST/SG/AC.10/C.3/2024/20 (United Kingdom)

Informal documents: INF.26, (Belgium, France, RECHARGE on behalf of the IWG)
INF.27, INF.28, INF.29, INF.30 (United Kingdom)
INF.31 (MDTC)
INF.45 (KFI)
INF.69 and INF.70 (Belgium, France, RECHARGE on behalf of the IWG)

70. The Sub-Committee welcomed the report in ST/SG/AC.10/C.3/2024/13 and further information in informal document INF.69. It noted the five concepts discussed during two lunchtime working group meetings on 27 and 28 June 2024 on the new classification: (i) optional/voluntary basis, (ii) granularity, (iii) packing conditions, (iv) state of charge and (v) sodium ion batteries.

71. The Sub-Committee deferred consideration of the other documents to the informal working group on the hazard-based classification of lithium batteries and cells (IWG).

72. The Sub-Committee noted that further work was needed and that the next meeting of the IWG was scheduled to be held in Washington on 27-29 August 2024. Interested delegates were invited to participate.

C. Transport provisions

1. Transport of sodium ion batteries with organic electrolyte installed in cargo transport unit

Document: ST/SG/AC.10/C.3/2024/36 (China)

Informal document: INF.66 (China)

73. Most experts supported in principle the proposed amendments in document ST/SG/AC.10/C.3/2024/36, while others believed that the text needed some improvement. Other delegations were in favour of a single entry as proposed by China. It was noted that a consequential amendment was necessary also to special provision 401. Following the discussion, the Sub-Committee adopted the amendments to the *Model Regulations* in informal document INF.66, as modified (see annex II).

2. Issues regarding the interpretation of the scope of application of special provision 188

Informal document: INF.9 (Germany)

74. The Chair extended the invitation to all experts of the Sub-Committee to send their replies on the questions in paragraph 5 of informal document INF.9 to the expert from Germany who volunteered to seek then the advice of the members of the IWG. One expert felt it premature in the course of the ongoing discussion on the reclassification in the IWG to advise on the scope of application of special provision 188. The expert from Germany offered to come back with a more detailed proposal at a future session, based on the feedback received.

3. Communication of surrounding conditions in accordance with packing instructions P911 and LP906

Informal document: INF.10 (Belgium)

75. The Sub-Committee agreed that proper communication of the usage conditions of these packagings was very important for safety, but emphasized that such operational decisions were generally left to the modal bodies to decide upon. The expert from Belgium withdrew the document mentioning further proposals might be submitted to the different modal bodies.

D. Damaged or defective lithium batteries

76. As no document had been submitted under this agenda sub-item, no discussion took place on this subject.

E. Sodium ion batteries

77. As no document had been submitted under this agenda sub-item, no discussion took place on this subject.

F. Miscellaneous

1. New special provision for all-solid-state lithium ion cells and batteries (UN 3480 and UN 3481) that do not cause thermal runaway

Document: ST/SG/AC.10/C.3/2024/42 (Japan)

Informal document: INF.48 (RECHARGE)

78. The Sub-Committee took note of the information provided and acknowledged Japan's input. It was agreed that the IWG would continue to discuss in detail this subject, subject to its priorities and resources, and report back to the Sub-Committee at its November 2024 session, if mature. The Sub-Committee recognized that some batteries may have a lower hazard than others and recommended that the IWG finalize the tests that demonstrate no hazardous effects (see document ST/SG/AC.10/C.3/2024/13 under para. 70 above) as a matter of priority. The expert from Japan offered to prepare a new proposal for the next biennium taking into account future discussion and development in the IWG.

2. Exception for equipment containing both lithium batteries and lithium button cells

Document: ST/SG/AC.10/C.3/2024/53 (IATA)

79. Several experts questioned whether the phrase “a button cell” intended to cover a single button cell or multiple button cells. The representative of IATA clarified that the intent of the amendment was to authorize a single button cell in addition to cells or batteries, as this was the most typical case. The Sub-Committee adopted by majority the proposed amendments to the *Model Regulations* (see annex II).

VII. Transport of gases (agenda item 5)

A. Global recognition of UN and non-UN pressure receptacles

Acetylene cylinder marking

Informal document: INF.13 (EIGA)

80. The Sub-Committee noted general support on the proposal. Some experts acknowledged a preference for regulatory text instead of a note depending on the intent if it should be a transitional derogation or a permanent solution. The representative of EIGA concluded that he would prepare an official document for consideration at the next session and take account of the comments received.

B. Limited quantities for division 2.2

81. As no document had been submitted under this agenda sub-item, no discussion took place on this subject.

C. Miscellaneous

1. Updated ISO standards in class 2

Document: ST/SG/AC.10/C.3/2024/11 (ISO)

Informal documents: INF.34 (Germany) and INF.56 (ISO)

82. The representatives of ISO withdrew proposal 1 in document ST/SG/AC.10/C.3/2024/11. The Sub-Committee adopted proposals 2 and 3 and agreed that a note should be included into the *Model Regulations* with the entry for standard ISO 11623:2023 as proposed in paragraph 9 of informal document INF.56 (see annex II).

83. The representatives of ISO suggested organizing a virtual meeting to further discuss the remaining proposals in document ST/SG/AC.10/C.3/2024/11 and the comments by Germany in informal document INF.34. Interested delegates should reach out to him about their preferences.

2. Updated ISO standards in class 2 – standard ISO 10297:2024

Informal document: INF.8 (ISO)

84. The Sub-Committee adopted the proposed amendments and agreed to keep them in square brackets, subject to confirmation during the next session (see annex II).

3. Carriage of different gases within a single bundle of cylinders

Informal document: INF.12 (United Kingdom)

85. Following the discussion of the document, there was consensus that a bundle of cylinders is permitted to carry only one gas at the same time, but multiple manifolds were permitted.

VIII. Miscellaneous proposals for amendments to the Model Regulations on the Transport of Dangerous Goods (agenda item 6)

A. Marking and labelling

1. Clarification of the battery mark requirements under special provision 188

Document: ST/SG/AC.10/C.3/2024/28 (Canada, China)

86. The Sub-Committee adopted the proposed amendment to the *Model Regulations* (see annex II).

2. Variations of flame symbol design

Document: ST/SG/AC.10/C.3/2024/34 (COSTHA)

87. All experts that took the floor agreed that minor differences in the labels among different regulations should not be a reason for rejections. However, there was some disagreement on the best way to address this in the *Model Regulations*. It was noted that in some modal regulations such as the ADR, IMDG Code, and ICAO Technical Instructions additional text was inserted to convey a flexible enforcement. Furthermore, several experts expressed a desire for more harmonization of the labels and pictograms used in different regulations, although other experts pointed out the difficulty of this endeavour, especially in the short term. After the discussion, the representative of COSTHA suggested to come up at the next session with an improved proposal.

B. Packagings, including the use of recycled plastics material

1. Performance and frequency of tests

Document: ST/SG/AC.10/C.3/2024/12 (Germany)

88. The Sub-Committee adopted the amendments to the *Model Regulations* proposed in paragraphs 7, 8 and 9 of document ST/SG/AC.10/C.3/2024/12 (see annex II). The discussion on the interpretation of “appropriate test” proposed in paragraph 10 was deferred.

2. Use of recycled plastics material for flexible intermediate bulk containers

Document: ST/SG/AC.10/C.3/2024/47 (Belgium)

89. Most experts supported the intent of the document and believed that the proposed text needed some improvements. The expert from Belgium withdrew the document and announced to further work on the proposal taking into account the comments received and to submit a new document for the next session.

3. Use of the REC-marking on packagings and intermediate bulk containers made from recycled plastics material

Informal document: INF.15 (Belgium)

90. The Sub-Committee noted general support of the proposal. The expert from the United Kingdom informed the Sub-Committee about the ongoing work by ISO on standard ISO 16103 and urged all interested delegates to follow the ongoing progress. On the proposal to remove the mark “REC”, some experts considered it premature to update already at this stage the *Model Regulations* and preferred to wait for the final revision of the ISO standard.

4. Request for clarification on the periodic leakproofness re-testing of intermediate bulk containers after two and a half years

Informal document: INF.44 (Germany)

91. Views were divided on the proposal to clarify the provisions on the periodic re-testing of the leakproofness of intermediate bulk containers (IBCs). Some experts considered that

the provisions on the periodic re-testing of the leakproofness of IBCs were not the same as for the initial testing. Others felt the current provisions on IBCs were outdated and need a thorough revision. The expert from Germany invited all delegates to share their written comments and offered to prepare a more detailed proposal for the next session.

C. Portable tanks

1. Proposal for 6.9.4 “Requirements for the design, construction, inspection and testing of portable tanks with shells made of fibre reinforced plastics (FRP) materials intended for the transport of non-refrigerated liquefied gases”

Document: ST/SG/AC.10/C.3/2024/19 (Russian Federation)

Informal documents: INF.55 and INF.60 (Russian Federation)

92. The Sub-Committee noted in document ST/SG/AC.10/C.3/2024/19 the first draft amendment as a starting point for future discussions on a new section 6.9.4. It also noted in informal document INF.60 a first draft of the terms of reference of an informal working group that could be set up in the future.

93. After discussions during a lunchtime meeting some delegations reiterated their preference, expressed during the previous session, to gain in a first step more experience on the use of the current FRP tanks before launching the informal working group with these new tasks. Others were in favour of going forward with the development of new provisions on FRP portable tanks for the carriage of substances of class 2.

94. To cope with the doubts of some delegations, the expert from the Russian Federation suggested to come up at the next session with more detailed data on the status of experience in different regions, including evidence on the safety of FRP tanks. He invited all experts to send him by email their feedback and possible data in this field.

2. Modification of the fire resistance test provision contained in 6.9.2.7.1.5.1 of the Model Regulations

Document: ST/SG/AC.10/C.3/2024/29 (Poland)

95. The document was withdrawn by the author and a new proposal will be submitted at a future session.

D. Other miscellaneous proposals

1. Amendment of term ‘tons’ to ‘tonnes’ in the English text of 1.2.2.1

Document: ST/SG/AC.10/C.3/2024/3 (United Kingdom)

96. The Sub-Committee adopted the proposal as amended (see annex II).

2. Amendments to the Spanish language version

Document: ST/SG/AC.10/C.3/2024/9 (Spain)

Informal document: INF.17 (Spain)

97. The Sub-Committee adopted all five proposals in paragraph 6 of document ST/SG/AC.10/C.3/2024/9 and also the three proposals in paragraph 4 of informal document INF.17 amending the Spanish version of the *Model Regulations* (see annex II).

3. UN 1790 hydrofluoric acid

Document: ST/SG/AC.10/C.3/2024/30 (Spain)

98. To further ensure a greater consistency of the language versions, the Sub-Committee adopted proposals 1 and 2 to the Spanish version, proposal 3 to the English version and proposal 4, as amended, to the French version of the *Model Regulations* (see annex II). It was

noted that the amendment to proposal 4 also needed a consequential amendment to the Spanish version.

4. Amendment to 4.1.3.4 of the Model Regulations - Prohibited packagings for the substances may become liquid during transport

Document: ST/SG/AC.10/C.3/2024/43 (Republic of Korea)

Informal document: INF.46 (Germany, Republic of Korea)

99. Most experts supported in principle the amendments proposed in informal document INF.46 but felt that further improvement was needed. The experts from Germany and Korea offered to come up with a joint official document for consideration at the next session.

5. Amendment to 7.1.1.9 of the Model Regulations - Packages designed for stacking

Document: ST/SG/AC.10/C.3/2024/44 (Republic of Korea)

100. Most experts supported in principle the proposal, but some others felt that the issue should instead be addressed by training. After discussion, the Sub-Committee adopted by majority the proposed amendments (see annex II).

6. Transport under temperature control – Requirements according to 7.1.5.4.2

Informal document: INF.18 (Germany)

101. The Sub-Committee noted general support on options 2 and 3 proposed in informal document INF.18. The expert from Germany invited all interested experts to send by email further written comments and volunteered to prepare an official document based on the feedback received and submit it for consideration at the next session.

IX. Global harmonization of transport of dangerous goods regulations with the Model Regulations (agenda item 7)

Follow-up proposal related to the outcome of the thirty-ninth session of the Editorial and Technical Group on the International Maritime Dangerous Goods Code

Document: ST/SG/AC.10/C.3/2024/14 (IMO)

102. The Sub-Committee adopted the proposed amendments to the *Model Regulations* (see annex II).

X. Cooperation with the International Atomic Energy Agency (agenda item 8)

103. As no document had been submitted under this agenda item, no discussion took place on this subject.

XI. Guiding principles for the Model Regulations (agenda item 9)

104. As no document had been submitted under this agenda item, no discussion took place on this subject.

XII. Issues relating to the Globally Harmonized System of Classification and Labelling of Chemicals (agenda item 10)

A. Testing of oxidizing substances

105. As no document had been submitted under this agenda sub-item, no discussion took place on this subject.

B. Simultaneous classification in physical hazards and precedence of hazards

1. Status report of the GHS informal working group on combinations of physical hazards

Informal document: INF.22 (Germany on behalf of the IWG)

106. The Sub-Committee took note of the progress report of the informal working group. Experts interested to participate in the work of the informal working group were invited to contact the expert from Germany (Ms. Cordula Wilrich).

2. Proposal for clarifications on the combinations of aerosols and chemicals under pressure with other hazard classes in the Globally Harmonized System of Classification and Labelling of Chemicals

Document: ST/SG/AC.10/C.3/2024/4 (Germany)

Informal document: INF.4 (Germany on behalf of the IWG)

107. The Sub-Committee supported in principle the proposals (including the related options 1 and 2) in the paragraphs addressing chemicals under pressure and aerosols in the document from Germany. Following an exchange of views among experts, the TDG Sub-Committee decided to leave the decision on the preferred options proposed in the document to the discretion of the GHS Sub-Committee.

3. Proposal for further clarification on the hazard class “Aerosols” in the Globally Harmonized System

Document: ST/SG/AC.10/C.3/2024/5 (FEA)

108. The TDG Sub-Committee considered that the proposed amendment would improve understanding of the criteria and supported the proposed amendments to the *GHS*, subject to the decision by the GHS Sub-Committee.

4. Aerosols – Alignment of special provision 63 with special provision 362

Document: ST/SG/AC.10/C.3/2024/6 (FEA)

109. The TDG Sub-Committee noted general support on the amendments to the *Manual of Tests and Criteria*, proposed in paragraph 7 of the document. On the proposal in paragraph 6, the Sub-Committee expressed support in principle but considered that additional clarification was needed on the text before it could be considered for adoption. Several delegations pointed out that with the proposed amendments, the scope of the special provision would become unclear, as it regards classification based on the overall contents of the aerosol (including the propellant) or on contents other than the propellant. It was also noted that some editorial improvements may be needed and that a more recent version of standard ISO/FDIS 13943 for the determination of the chemical heat of combustion was available. The representative of FEA welcomed the feedback provided and indicated his intention to revise the proposal accordingly, taking also into account any advice that the GHS Sub-Committee may wish to provide during the discussion of this topic at its forty-sixth session.

C. Miscellaneous

1. Consideration of nitrocellulose mixtures in chapter 2.17 (Desensitized explosives) of the Globally Harmonized System, section 51 of the Manual of Tests and Criteria and special provision 393 of the Model Regulation

Document: ST/SG/AC.10/C.3/2024/24 (AEISG)

Informal document: INF.67, para. 19 (Chair of the EWG)

110. The Sub-Committee noted the outcome of the discussion on this topic by the EWG and endorsed its recommendation (see informal document INF.67, para. 19). The representative of AEISG welcomed the offer from SAAMI and the expert from the United States of America to work together on a revised proposal aiming at finding a suitable solution to address the issues raised within this biennium. The Sub-Committee noted that AEISG intended to submit a revised proposal for the next session.

2. Consideration of amendments to chapter 2.17 (Desensitized explosives) of the Globally Harmonized System and section 51 of the Manual of Tests and Criteria

Document: ST/SG/AC.10/C.3/2024/25 (AEISG)

Informal document: INF.67, para. 20 (Chair of the EWG)

111. The Sub-Committee endorsed the recommendation by the EWG and, pending endorsement by the GHS Sub-Committee at its forty-sixth session, provisionally adopted the amendments to section 51 of the *Manual of Tests and Criteria* as amended by the EWG in informal document INF.67, annex 2, amendment 8 (see annex I).² The Sub-Committee also endorsed the recommendation by the EWG on the proposal for amendment to chapter 2.17 of the *GHS*.

3. Proposal for clarification to the aerosol category 3 criteria

Informal document: INF.57 (United States of America)

112. The Sub-Committee supported the proposal in principle. The expert from the United States of America invited experts who commented to send their written comments (Ms. Janet Carter) to prepare an official document for the next session and to take account of the feedback received.

XIII. Unified interpretation of the Model Regulations (agenda item 11)

113. As no document had been submitted under this agenda item, no discussion took place on this subject.

XIV. Implementation of the Model Regulations (agenda item 12)

114. As no document had been submitted under this agenda item, no discussion took place on this subject.

² **Note by the secretariat:** At its forty-sixth session, the GHS Sub-Committee considered the proposals in the document from AEISG and the recommendations from the Sub-Committee. After discussion, the GHS Sub-Committee proposed an alternative amendment to paragraph 32.3.2.1 (including a consequential amendment to paragraph 33.3.1) of the *Manual of Tests and Criteria* for consideration by the Sub-Committee at its sixty-fifth session (for additional background refer to the report of the GHS Sub-Committee, document ST/SG/AC.10/C.4/92, paragraph 12 and annex II). For the proposal by the GHS Sub-Committee please refer to document ST/SG/AC.10/C.3/2024/58.

XV. Dangerous goods safety training and capacity building (agenda item 13)

Status of implementation of the *Model Regulations* in South Africa and status of dangerous goods training

Informal document: INF.6 (South Africa)

115. The document was withdrawn by the author. The Sub-Committee noted the information by RPMASA about the efforts by South Africa to strengthen the training skills of labour people in the region involved in the supply chain of dangerous goods.

XVI. United Nations 2030 Agenda for Sustainable Development (agenda item 14)

Contributions by the Committee of Experts to the coordination segment of the Economic and Social Council

Informal document: INF.38 (Secretariat)

116. The Sub-Committee noted in informal document INF.38 some of its contributions and actions to the ECOSOC Coordination Segment.

XVII. Opportunities to enhance operational efficiency and inclusiveness (agenda item 15)

117. The Sub-Committee noted that no document had been submitted under this agenda item, but agreed to consider this subject during the next session.

XVIII. Other business (agenda item 16)

A. Application for consultative status by the American Pyrotechnic Association

Informal document: INF.51 (Secretariat)

118. The Sub-Committee considered informal document INF.51 and noted no objection to grant consultative status to American Pyrotechnic Association (APA).

B. Meeting dates for the sixty-fifth session

119. The Sub-Committee noted the meeting dates and document submission deadlines for its sixty-fifth session as follows:

- Meeting dates: From 25 November to 3 December 2024;
- Deadline for submission of official documents: 30 August 2024 (for official documents submitted for consideration by the TDG Sub-Committee).

120. The twelfth session of the Committee of Experts on the Transport of Dangerous Goods and on the Globally Harmonized System of Classification and Labelling of Chemicals will be held on 6 December 2024.

C. Dangerous goods awareness day

121. The Sub-Committee noted the information about the forthcoming Dangerous Goods Awareness Day in the United Kingdom, happening on 11 July 2024. More detailed information is available at: [BADGP - Webinar: National Dangerous Goods Awareness Day](#)

D. Tributes

122. The Sub-Committee was informed that Mrs. Silvia García Wolfrum (Spain) took over new responsibilities and will no longer attend future sessions. The Chair thanked her warmly for her contribution to the work of the Sub-Committee and wished her all success in her new endeavours.

123. Learning that Mr. Dieter Heitkamp (Cefic) decided to take his retirement and will no longer attend future sessions, the Sub-Committee thanked him for his contributions to the activities of the Sub-Committee over more than twenty-five years and wished him a long and happy retirement.

XIX. Adoption of the report (agenda item 17)

124. The Sub-Committee adopted the report on its sixty-fourth session and its annexes on the basis of a draft prepared by the secretariat.
