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**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-first session**

held in Geneva from 28 November to 6 December 2022

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- II. Draft amendments to the twenty-second revised edition of Recommendations on the Transport of Dangerous Goods, Model Regulations (ST/SG/AC.10/1/Rev.22)<sup>1</sup>.....
- III. Modifications to the sixth version of the Guiding Principles for the Development of the Model Regulations on the Transport of Dangerous Goods [English only]<sup>1</sup>.....

<sup>1</sup> For practical reasons, this annex has been published as an addendum with the symbol ST/SG/AC.10/C.3/122/Add.1.

## I. Attendance

1. The Sub-Committee of Experts on the Transport of Dangerous Goods held its sixty-first session from 28 November to 6 December 2022, with Mr. D. Pfund (United States of America) as Chair and Mr. C. Pfauvadel (France) as Vice-Chair.
2. Experts from the following countries took part in the session: Australia, Austria, Belgium, Brazil, Canada, China, Finland, France, Germany, Italy, Japan, Mexico, the Netherlands, Poland, Republic of Korea, Russian Federation, South Africa, Spain, Sweden, Switzerland, United Kingdom and United States of America.
3. Under rule 72 of the rules of procedure of the Economic and Social Council, observers from Luxembourg also took part.
4. Representatives of the European Union and 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) 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); the European Confederation of Fuel Distributors (ECFD); European Association for Advanced Rechargeable Batteries (RECHARGE); European Association of Automotive Suppliers (CLEPA); European Chemical Industry Council (Cefic); European Cylinder Makers Association (ECMA); European Industrial Gases Association (EIGA); European Metal Packaging (EMPAC); Federation of European Aerosol Associations (FEA); Institute of Makers of Explosives (IME); International Air Transport Association (IATA); International Confederation of Container Reconditioners (ICCR); International Confederation of Drums Manufacturers (ICDM); International Confederation of Plastics Packaging Manufacturers (ICPP); International Dangerous Goods and Containers Association (IDGCA); International Fibre Drum Institute (IFDI); International Organization of Motor Vehicle Manufacturers (OICA); International Organization for Standardization (ISO); International Vessel Operators Dangerous Goods Association (IVODGA); Medical Device Battery Transport Council (MDBTC); PRBA – The Rechargeable Battery Association; Responsible Packaging Management Association of Southern Africa (RPMASA); Sporting Arms and Ammunition Manufacturers' Institute (SAAMI), Stainless Steel Container Association (SSCA); World Coating Council (WCC former IPPIC) and World LPG Association (WLPGA).

## II. Opening of the session

### Organizational matters

*Informal document:* INF.22 (Accreditation, registration, working arrangements and provisional timetable)

7. The sixty-first session of the Sub-Committee was still held in a hybrid format, with the possibility of participation online or in person, following the format described in informal document INF.22. Following the global recovery from impact of the COVID-19 pandemic, the United Nations Office in Geneva will return back to “Business As Usual”. Therefore, the Sub-Committee sessions in 2023 will be organized as in-person meetings only.

## III. Adoption of the agenda (agenda item 1)

*Documents:* ST/SG/AC.10/C.3/121 (Provisional agenda)  
ST/SG/AC.10/C.3/121/Add.1 (List of documents and annotations)

*Informal documents:* INF.1 and INF.2 (List of documents)  
INF.22 (Accreditation, registration, working arrangements and provisional timetable for the sixty-first session)  
INF.36 (Reception by non-governmental organizations)

8. The Sub-Committee adopted the provisional agenda prepared by the secretariat after amending it to take account of informal documents INF.1 to INF.59.

#### **IV. Recommendations made by the Sub-Committee at its fifty-fifth and fifty-sixth sessions and pending issues (agenda item 2)**

##### **A. Review of draft amendments already adopted during the biennium**

###### **1. Consolidated list of draft amendments**

*Documents:* ST/SG/AC.10/C.3/2022/75 (Secretariat)  
ST/SG/AC.10/C.3/2022/49 (Germany)

*Informal document:* INF.39/Rev.1 (Secretariat)

9. The Sub-Committee confirmed the amendments to the Model Regulations and the Manual of Tests and Criteria in document ST/SG/AC.10/C.3/2022/75, including those between square brackets, with additional amendments in informal document INF.39/Rev.1 (see annexes I and II).

###### **2. Special provision 388**

*Document:* ST/SG/AC.10/C.3/2022/78 (OTIF secretariat)

*Informal document:* INF.15 (IATA)

10. Taking into account the justification in information document INF.15, the secretariat of OTIF withdrew document ST/SG/AC.10/C.3/2022/78.

##### **B. Explosives and related matters**

###### **1. Review of test series 6**

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

###### **2. Improvement of test series 8**

###### **(a) Research in relation to the 6d Test and exit from Class 1**

*Document:* ST/SG/AC.10/C.3/2022/55 (COSTHA, SAAMI)

12. The Sub-Committee welcomed the information by COSTHA and SAAMI on the ongoing research to exit from Class 1 for certain very low hazard explosives, and separately, on the evaluation of hazardous effects in Test 6(d). The authors were encouraged to work further on their research and to submit a more detailed document on the results at a future session.

###### **(b) Response to informal document INF.42 from the sixtieth session**

*Informal document:* INF.43 (IME)

13. The Sub-Committee noted the information by IME in response to informal document INF.42 of the sixtieth session. The representative of RPMASA thanked IME for the information and announced her intention to prepare jointly with them an official document for the next session.

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

*Document:* ST/SG/AC.10/C.3/2022/57 (Cefic)

14. The Sub-Committee adopted the amendments proposed in paragraphs 5 and 6 in document ST/SG/AC.10/C.3/2022/57 to sections 1.2.1.4.3 and 20.2.5 of the Manual of Tests and Criteria (see annex II). It was noted that the official document was also listed on the agenda of the GHS Sub-Committee. This decision should be brought to the attention of the GHS Sub-Committee.

### 4. “UN” standard detonators

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

### 5. Review of packing instructions for explosives

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

### 6. Energetic samples

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

### 7. Issues related to the definition of explosives

*Document:* ST/SG/AC.10/C.3/2022/47 (Sweden)

18. The Sub-Committee adopted the amendment to the definition of “pyrotechnic substance” and the introduction of definition of “explosive or pyrotechnic effect” as proposed in paragraphs 10 and 11 of document ST/SG/AC.10/C.3/2022/47 (see annex I). It was noted that the GHS Sub-Committee would be informed about the TDG Sub-Committee’s decision when considering the corresponding amendments to the GHS proposed in paragraphs 13 and 14 of document ST/SG/AC.10/C.3/2022/47.

### 8. Review of packaging and transport requirements for ammonium nitrate emulsions

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

### 9. Miscellaneous

#### (a) Classification of nitrocellulose membrane filters for diagnostic and other life science applications

*Document:* ST/SG/AC.10/C.3/2022/59 (Cefic, WONIPA)

*Informal document:* INF.8 (Cefic, WONIPA)

20. The Sub-Committee adopted the proposal in document ST/SG/AC.10/C.3/2022/59 on the classification of nitrocellulose membrane filters with an additional amendment to the reference to ISO 15105 (see annex I).

#### (b) Assignment of special provision 28 to liquid desensitized explosives in the Dangerous Goods List

*Documents:* ST/SG/AC.10/C.3/2022/58 (Cefic)

ST/SG/AC.10/C.3/2022/63 (China)

*Informal documents:* INF.6 and INF.48 (Cefic)

INF.46 (United Kingdom)

21. The Sub-Committee adopted the revised proposal in informal document INF.48 (see annex I).

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

### A. Specific activity and activity concentration

*Document:* ST/SG/AC.10/C.3/2022/46 (Secretariat)

22. The Sub-Committee adopted the proposed amendment to add in 2.7.1.3 of the Model Regulations a clarifying note to the definition of “specific activity of a radionuclide” (see annex I).

### B. Present and future products in the Liquefied Petroleum Gas industry, amendment of UN Numbers, discussion points and proposals

*Document:* ST/SG/AC.10/C.3/2022/53 (World LPG Association, Liquid Gas Europe)

*Informal documents:* INF.23 and INF.24 (World LPG Association, Liquid Gas Europe)

23. The Sub-Committee noted the information in document ST/SG/AC.10/C.3/2022/53 and informal document INF.23. It welcomed the initiative of the liquefied petroleum gas industry to offer, in the context of circular economy and the sustainable use of natural resources, a solution to reduce the overall carbon footprint. On the options proposed in both documents, most of the experts who spoke preferred to go forward with the introduction of a new special provision. It was agreed that more research and data was needed on the percentage of dimethyl ether (DME) blended with liquefied petroleum gas, including the results on the compatibility of DME with material used for tanks, cylinders and their sealings.

24. On the proposal in informal document INF.24 to introduce a new UN number for blends with much higher percentage of DME, the experts who spoke raised general caution and expressed the need to extend views across sectors other than the transport sector e.g. the implications in the non-road mobile machinery sector.

25. The Sub-Committee agreed to resume consideration of this subject at its next session, based on new documents by World LPG Association and Liquid Gas Europe, including the outcome of their research work, if possible.

### C. Proposal to add class 8 as subsidiary hazard to UN 1040 ETHYLENE OXIDE or ETHYLENE OXIDE WITH NITROGEN up to a total pressure of 1 MPa (10 bar) at 50 °C

*Document:* ST/SG/AC.10/C.3/2022/54 (Germany)

26. Some experts were of the opinion that the classification of UN 1040 in the Model Regulations needed to be reviewed based on the corrosive properties of ethylene oxide. Others expressed concerns on the amendments proposed in document ST/SG/AC.10/C.3/2022/54 and preferred to consider in detail the type of implications and risks based on more detailed data. Most delegations who spoke agreed that more work and studies needed to be done. The expert from Germany suggested to come up with a revised document for consideration at the next session, taking into account the comments received.

### D. Transport provisions for small quantities of environmentally hazardous paints and printing inks (and related materials)

*Document:* ST/SG/AC.10/C.3/2022/56 (WCC)

*Informal document:* INF.47 (WCC)

27. The Sub-Committee did not support either option proposed in document ST/SG/AC.10/C.3/2022/56 to introduce two new UN numbers for environmentally hazardous paint and printing ink mixtures (one for liquid products and one for solid powders) or a new special provision to extend quantity limits up to 30 litres or 30 kg. Such an



amendment would create a fundamental concern as it would result in a precedent for many other products concerned. The Sub-Committee suggested that in the future it could discuss more broadly the need for performance oriented packagings for environmentally hazardous products. It was recommended to seek national or regional solutions within the different transport modes, e.g. through amendments to the regulations annexed to the ADR, ADN or RID. The representative of WCC was invited to reach out to the delegations that expressed their concerns to follow up.

## **E. Fire tests required in special provisions 283 and 371**

*Document:* ST/SG/AC.10/C.3/2022/64 (China)

*Informal document:* INF.11 (Spain)

28. The Sub-Committee adopted the amendments proposed in paragraph 7 in document ST/SG/AC.10/C.3/2022/64 to correct in special provision 371 subparagraph (1)(f) (see annex I).

29. The Sub-Committee adopted the editorial changes proposed in informal document INF.11 to align the text of special provisions 283 and 371 in the Spanish language version of the Model Regulations (see annex I).

## **F. Amendment to 3.1.2.2 of the Model Regulations**

*Documents:* ST/SG/AC.10/C.3/2022/65 (China)

30. The Sub-Committee adopted the proposed amendments clarifying the text of 3.1.2.2 (see annex I).

## **G. Proposals for polyester resin kit**

*Document:* ST/SG/AC.10/C.3/2022/67 (China)

*Informal document:* INF.25 (Spain)

31. Most delegations who spoke were of the opinion that the current text of special provision 236 was clear enough and that, in the absence of a safety concern, no amendment was needed. It was noted that resin kits were not comparable to chemical kits or first aid kits, as these could contain a wide range of substances. The expert from China offered to further consider this subject based on the comments received and to come back, if necessary, with an updated document at the next session.

## **H. Amendments to packing instructions**

*Document:* ST/SG/AC.10/C.3/2022/76 (Secretariat)

*Informal document:* INF.3 (Secretariat)

32. The Sub-Committee welcomed and adopted the amendments in proposals 1, 2, 3, 5, 6, 7, 8 and 10 of document ST/SG/AC.10/C.3/2022/76 including some editorials as consolidated in informal document INF.3 (see annex I). On proposal 4 it also adopted the option “maximum net mass” and on proposal 9 the option “9a” to add the text as a new additional requirement. On proposal 2 the secretariat was invited to align, if necessary, the existing template in the Guiding Principles.

## **I. Portable tank instructions and portable tank special provisions (follow-up to document ST/SG/AC.10/C.3/2022/39)**

*Document:* ST/SG/AC.10/C.3/2022/77 (Secretariat)

33. The Sub-Committee adopted the amendments in proposal 1 and proposal 3 (see annexes I and II). Proposal 2 was withdrawn pending further research.

**J. Adequate UN entry for 2,4-Dichlorophenol with possible solution for all chlorophenols**

*Informal document:* INF.9 (Germany)

34. Most experts who took the floor supported the proposal to insert into the Model Regulations a sub-classification of all chlorophenols and expressed a preference for option 3. Some experts questioned how to do this sub-classification in view of the numerous compounds of chlorophenols. Others questioned the need for such a sub-classification in the absence of evidence on safety concerns. The Sub-Committee agreed to resume consideration of this subject at its next session. The expert from Germany offered to prepare an updated proposal taking into account the comments received including a detailed justification and to submit it as an official document for the next session.

**K. Differentiation between UN 1950 aerosols and UN 2037 receptacles, small, containing gas (gas cartridges) and proposed marking requirements for UN 2037 receptacles, small, containing gas (gas cartridges)**

*Document:* ST/SG/AC.10/C.3/2022/51 (Germany)

*Informal document:* INF.16 (FEA/HCPA)

35. Opinions differed on the need to amend the Model Regulations to better distinguish articles classified under UN 1950 and UN 2037. While several experts felt that further clarification and work were needed, other experts raised caution, in the absence of safety issues in practice, on the potential impact of amendments on the transport of these articles. It was noted that in some regions, aerosol, aerosol dispenser and gas cartridges were regulated in different ways, also depending on the mixture they contain and whether or not they are equipped with a release device.

36. Following an informal discussion, it was agreed that there was a need to harmonize the provisions in the Model Regulations. The expert from Germany offered to set up a correspondence group to further develop the proposed options and to prepare an updated document for the next session. He invited all delegations to send him an email of interest (Philipp.Beyer@bmdv.bund.de), including suggestions or possible amendments to the proposals.

37. The Sub-Committee welcomed that initiative and agreed to further consider this subject at its next session based on a new document by Germany.

**L. Revision of the classification of tetramethylammonium hydroxide**

*Documents:* ST/SG/AC.10/C.3/2022/68 (Netherlands)  
ST/SG/AC.10/C.3/2022/72 (Cefic, DGAC)

*Informal documents:* INF.19 (Netherlands)  
INF.21 and 54 (Cefic, DGAC)

38. The Sub-Committee agreed to have a more in-depth discussion during an informal session led by Belgium on informal documents INF.19 and INF.21. During that discussion, there was no consensus on how to go forward. The majority view of the Sub-Committee was reflected in informal document INF.54.

39. Finally, the expert from the Netherlands still raised a concern about the proposed amendments in informal document INF.54 on the cut-off values of the concentration limits.

40. The Sub-Committee adopted by majority the amendments proposed in informal document INF.54 as amended (see annex I).

**M. Assignment of a new UN number to lithium battery powered vehicles**

*Document:* ST/SG/AC.10/C.3/2022/70 (IATA)

*Informal documents:* INF.45 (United Kingdom)  
INF.51/Rev.1 (IATA)

41. The Sub-Committee considered document ST/SG/AC.10/C.3/2022/70 and adopted the amendments proposed in informal document INF.51/Rev.1 with an additional correction (see annex I).

**N. Fire suppression devices that contain a pyrotechnic material**

*Document:* ST/SG/AC.10/C.3/2022/73 (COSTHA)

*Informal document:* INF.53/Rev.1 (COSTHA)

42. Following the discussion during an informal session on document ST/SG/AC.10/C.3/2022/73, the Sub-Committee adopted by majority the amendments proposed in informal document INF.53/Rev.1 with some editorial modifications (see annex I).

**VI. Electric storage systems (agenda item 4)****A. Testing of lithium batteries**

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

**B. Hazard-based system for classification of lithium batteries**

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

**C. Transport provisions****1. Transport provisions for composite batteries consisting of both lithium ion cells and sodium ion cells**

*Informal document:* INF.37 (China)

45. The Sub-Committee acknowledged that in the case of hybrid batteries that were connected the current provisions for testing and packagings in the Model Regulations were not clear and need to be reviewed. The expert from China offered to further study this subject and to submit for the next session a new proposal with detailed information.

**2. Amendments to labelling requirements of packages in the UN Model Regulations**

*Informal document:* INF.38 (China)

46. The Sub-Committee noted divided opinions on the proposed options. While some experts expressed their support for option 1 to amend special provision 384, others believed the labelling requirements were well established and that an amendment was not needed and might even result in unintended consequences. The expert from China volunteered to further work on an updated proposal taking into account the comments received for consideration at the next session.

## **D. Damaged or defective lithium batteries**

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

## **E. Sodium-ion batteries**

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

## **F. Miscellaneous**

### **1. Use of the terms “rated capacity”, “nominal energy” and “watt-hour rating” in the different versions of the Model Regulations and the Manual of Tests and Criteria**

*Informal document:* INF.5 (Secretariat)

49. The Sub-Committee welcomed the proposals in informal document INF.5 to bring more clarity and consistency to several aspects of the regulations. On proposal 1, the Sub-Committee did not support introducing a dot in the unit symbol for watt-hours. On proposal 2, although some delegations favoured aligning on the term “nominal energy” (option 2a), most delegations favoured aligning on the term “watt-hour rating” (option 2b), as this term is more widely used in practice. On proposal 3, some experts requested more time to evaluate the best option for the terms “rated capacity” and “nominal capacitance” in French. The Sub-Committee generally supported proposals 4, 5 and 6. Finally, the secretariat was requested to submit an official document for the next session, taking into account the comments received.

### **2. Reuse and repurpose of lithium ion cells and batteries**

*Informal document:* INF.58 (PRBA, RECHARGE)

50. Following an informal discussion, the Sub-Committee noted that not all categories of the definitions used in industry practice need to be listed in the Model Regulations. It was suggested that further work was necessary and that the informal working group on reuse, repair and re-purposing lithium ion cells and batteries should continue its activities.

## **VII. Transport of gases (agenda item 5)**

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

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

### **B. Limited quantities for division 2.2**

*Document:* ST/SG/AC.10/C.3/2022/74 (COSTHA)

*Informal document:* INF.52 (COSTHA)

52. Some experts raised their concern on the proposal in document ST/SG/AC.10/C.3/2022/74 aimed to increase of the limited quantity volume for Division 2.2 compressed gases. Others supported in principle the proposed amendments. Following the discussion, the Sub-Committee adopted by majority the amendments proposed in informal document INF.52 with additional modifications (se annex I).

## C. Miscellaneous

### 1. Updated ISO standards in Class 2

*Document:* ST/SG/AC.10/C.3/2022/60 (ISO)

*Informal document:* INF.7 (ISO)

53. The representative of ISO presented the amendments proposed in document ST/SG/AC.10/C.3/2022/60. The Sub-Committee adopted the two proposed amendments and the editorial amendment to 6.2.1.6.1 (see annex I). The first editorial amendment was superseded by the adopted amendments to 4.1.6.8 in document ST/SG/AC.10/C3/2022/75. On the note in proposal 1 it was affirmed that a type approval of gas cylinders in small quantities should cover a batch of maximum 200 cylinders.

54. The Sub-Committee also adopted the amendments proposed in informal document INF.7 to update the references to ISO standards as amended (see annex I).

### 2. Report of the intersessional working group on the pV-product limit for pressure receptacles

*Informal document:* INF.41 (Germany)

55. The Sub-Committee noted the progress report of the informal working group on the pV-product limit for pressure receptacles. The informal working group was invited to resume its work and to submit to the next session a more detailed document on the final outcome, if possible.

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

### A. Marking and labelling

*Document:* ST/SG/AC.10/C.3/2022/49 (Germany)

56. The document initially listed under this item was discussed under agenda item 2(a) above.

### B. Packagings, including the use of recycled plastics material

*Documents:* ST/SG/AC.10/C.3/2022/69 (ICPP, ICIBCA)  
ST/SG/AC.10/C.3/2022/71 (Belgium)

*Informal document:* INF.57 (Belgium, ICPP, ICIBCA)

57. Following an informal session led by Belgium on both documents ST/SG/AC.10/C.3/2022/69 and ST/SG/AC.10/C.3/2022/71, the Sub-Committee welcomed the positive outcome of the discussions to allow an increased use of recycled plastics material as reflected in paragraphs 2 and 3 of informal document INF.57. It adopted the amendments proposed in paragraph 4 of informal document INF.57 (see annex I). It was noted that this achievement will contribute to the sustainable development goals, in particular the sustainable use of natural resources.

## C. Portable tanks

### 1. Sub-Chapter 6.9.3 “Requirements for design, construction, inspection and testing of fibre reinforced plastic (FRP) service equipment for portables tank” and amendments to Sub-Chapter 6.9.1

*Document:* ST/SG/AC.10/C.3/2022/62 (Russian Federation on behalf of the Chair of the Working Group)

*Informal document:* INF.49 (Russian Federation on behalf of the Chair of the Working Group)

58. The Sub-Committee noted the work progress in informal documents INF.49 of the informal working group on FRP service equipment for portable tanks made during their hybrid meeting held on 28 November 2022. The document received a number of comments from several delegations. The Sub-Committee noted the intention of the group to convene again in early 2023 to finalize the new draft provisions to Chapter 6.9 of the Model Regulations, taking account of the comments received. The Sub-Committee agreed to resume consideration of this subject at its next session on the basis of an official document.

### 2. Transport of certain ALKALI METAL DISPERSIONS (UN 1391) and ALKALI METAL DISPERSIONS, FLAMMABLE (UN 3482) in portable tanks

*Document:* ST/SG/AC.10/C.3/2022/61 (United States of America)

*Informal document:* INF.56 (United States of America)

59. The Sub-Committee considered the amendments to UN 1391 and UN 3482 in the Dangerous Goods List and the insertion a new special provision in 4.2.5.3. It adopted the amendments proposed in informal document INF.56 (see annex I). The need for a consequential amendment to the Guiding Principles was noted.

## D. Other miscellaneous proposals

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

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

### A. IMO draft amendments to 5.5.4 of the IMDG Code

*Informal documents:* INF.26 (France)  
INF.28 (IMO)

61. The representative of France reported on the ongoing discussion at the IMO Sub-Committee on carriage of cargoes and containers (CCC 8) on amendments to the IMDG Code proposed for 5.5.4 that could have consequences in multimodal transport and thus the Model Regulations.

62. The Sub-Committee noted that the proposed amendments on devices containing dangerous goods which are in use or intended for use during transport might be useful for other transport modes. It was also noted that such new provisions including an adaptation of the title of the chapter in the Model Regulation would have an impact of the scope of application and therefore need careful consideration.

63. The Sub-Committee agreed to resume discussion on this subject at its July 2023 session on the basis of the outcome of discussions held at the Editorial and Technical group (E&T) during its spring session. If necessary, the expert from France would submit an official document on this subject.

## **B. Update of references to standards in the Manual of Tests and Criteria**

*Informal document:* INF.27 (Secretariat)

64. As a follow up of the discussion at the previous session on updates needed to some standards at stake in the Manual of Tests and Criteria (para. 114 of document ST/SG/AC.10/C.3/120) the secretariat presented in informal document INF.27 on the outcome of their consultation with ISO. The Sub-Committee requested the secretariat to resubmit the document as an official document for the next session and delegations were invited to review if the references to the standards listed are deemed to be updated in the Manual of Tests and Criteria.

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

65. 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)**

66. 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 (GHS) (agenda item 10)**

### **A. Testing of oxidizing substances**

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

### **B. Simultaneous classification in physical hazards and precedence of hazards**

*Document:* ST/SG/AC.10/C.3/2022/48 (Germany)

68. The Sub-Committee affirmed the interpretation of Note 1 to table 2.3.1 of the GHS as described in sections I and II of document ST/SG/AC.10/C.3/2022/48, and confirmed that all listed components should not be part of aerosols because such flammable components could react with air. It was recommended that special provision 63 should be aligned with the text of special provision 362.

69. On section III, the Sub-Committee noted the historical background of Test C.1 for corrosive to metals (e.g. aluminium and steel) and the hazards of material released, especially for aircrafts. It was confirmed that the test provisions do not apply neither to gases nor to packagings. On section IV, it was noted that Note 1 to 2.8.2.2 and 2.15.2.2 of GHS for self-reactive and organic peroxides of type G was intended to be broad and that following the usual principles for classification no clarification was needed.

### **C. Miscellaneous**

#### **1. Amendments to the classification of desensitized explosives according to the GHS**

*Document:* ST/SG/AC.10/C.3/2022/50 (Germany, United States of America)

*Informal documents:* INF.4 (Germany, United States of America)  
INF.20 (AEISG)  
INF.42 (United Kingdom)  
INF.59 (Germany, United Kingdom, United States of America)

70. The Sub-Committee agreed to defer to the next biennium consideration of the proposal related to issue 1 in informal document INF.20. After consideration of document ST/SG/AC.10/C.3/2022/50, it adopted the proposed amendments to section 51 of the Manual of Tests and Criteria as amended by informal document INF.59 (see annex II) and also supported the amendments to chapter 2.17 of the GHS, subject to endorsement by the GHS Sub-Committee.

## **2. Flammable liquids: Open-cup and closed-cup testing for the flash point**

*Document:* ST/SG/AC.10/C.3/2022/52 (Germany, Chair of Working Group on Explosives)

71. The Sub-Committee adopted the amendments to the Manual of Tests and Criteria proposed in the annex of document ST/SG/AC.10/C.3/2022/52 as amended (see annex II). It indicated its support on the corresponding proposal to the GHS. The value of “5 °C” was replaced by “5.6 °C” to align with 2.3.1.2 of the Model Regulations, although one expert raised concern that using a value with decimals could convey a false sense of accuracy. It was noted that the “5.6 °C” value was originating from the conversion of 10 °F into the Celsius scale.

## **3. Metal powders and powders of metal or metal alloys in Test N.1**

*Document:* ST/SG/AC.10/C.3/2022/66 (China)

*Informal document:* INF.44 (United Kingdom)

72. After consideration of the proposals in both documents, the Sub-Committee adopted the amendments to the Manual of Tests and Criteria and the Model Regulations proposed in informal document INF.44 (see annexes I and II). It supported the amendments to chapter 2.7 of the GHS, subject to the endorsement by the GHS Sub-Committee.

# **XIII. Unified interpretations of the Model Regulations (agenda item 11)**

*Informal document:* INF.30 (United States of America)

73. The Sub-Committee welcomed the information in informal document INF.30 and noted general support for the concept of unified interpretation of the Model Regulations. The Sub-Committee agreed on the importance of this subject and to keep it on the agenda for the next biennium. It was suggested organizing during the next session a brainstorming meeting on this subject, on the basis of an official document that would outline a potential way forward for establishing an interpretation process.

74. The Sub-Committee also welcomed the efforts of referencing the sustainable development goal including the appropriate targets which eases the secretariate’s tasks when reporting to ECOSOC. It was recalled that more detailed information on SDGs and the targets may be found at the UNECE website<sup>2</sup>.

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

*Informal document:* INF.31 (United States of America)

75. The Sub-Committee noted the lack of harmonization between countries of the level of implementation i.e. application of the different revised editions of the Model Regulations. It was noted that in the same country the different modes of transport might even apply

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<sup>2</sup> [https://unece.org/transport/dangerous-goods/ecosoc-bodies-dealing-chemicals-safety#accordion\\_8](https://unece.org/transport/dangerous-goods/ecosoc-bodies-dealing-chemicals-safety#accordion_8)



different editions. This might have an impact on the international transport of dangerous goods and result in disruption of supply chains. Therefore, it is important for the transport sector to have access to reliable information on applicable provisions for the carriage of dangerous goods.

76. The Sub-Committee welcomed the information on the implementation of the Model Regulations and competent authorities available at the links indicated in informal document INF.31 and also available at the UNECE websites of the ADR and ADN agreements. Delegates were invited to visit the websites and to share with the secretariat and the United States of America any further details that they might be aware of so that the available information could be kept updated.

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

*Informal document:* INF.50 (United States of America)

77. The Sub-Committee appreciated the efforts done in the United States of America to launch an initiative that aims to raise public awareness of undeclared dangerous goods and increase compliance with safety rules by: (i) identifying commonly shipped items that are dangerous goods and (ii) providing access to resources on how to safely ship dangerous goods. The expert from the United States of America invited delegates to visit the website and send him any comments on the “U.S Check the Box” campaign or feedback on similar campaigns in other countries or regions.

## **XVI. Programme of work for the biennium 2023-2024 (agenda item 14)**

### **Consolidated programme of work for 2023-2024**

78. Noting the decision of the United Nations to revert in 2023 to “business as usual”, the Sub-Committee had an exchange of views on opportunities to enhance its operational efficiency and inclusiveness, taking into account the lessons learned and the tools used during the COVID-19 pandemic. It was agreed to insert a new item on the agenda to resume discussion on this subject. The secretariat reminded the Sub-Committee that up to date no amendments have been adopted to the rules of procedures and invited delegates to contact their representatives in ECOSOC and the General Assembly to advocate for a possible future modernization of the rules of procedures.

79. Based on the proposals discussed and the various agenda items for this session, the Sub-Committee agreed to include the following items in its work programme for 2023-2024:

- (a) Explosives and related matters (including review of test series 6; improvement of test series 8; review of tests in parts I, II and III of the Manual of Tests and Criteria; “UN” standard detonators; energetic samples; review of packaging and transport requirements for ammonium nitrate emulsions; electrification and alternative fuels and how they will affect transport of explosives);
- (b) Listing, classification and packing (including amendments for an adequate classification of chlorophenols);
- (c) Electric storage systems (including testing of lithium batteries; hazard-based system for classification of lithium batteries; transport provisions; damaged or defective lithium batteries; and sodium-ion batteries);
- (d) Transport of gases (including global recognition of UN and non-UN pressure receptacles, limited quantities for division 2.2);

- (e) Miscellaneous proposals of amendments to the Model Regulations (including marking and labelling; packagings, including the use of recycled plastics material; portable tanks);
- (f) Global harmonization of transport of dangerous goods regulations with the Model Regulations;
- (g) Cooperation with the International Atomic Energy Agency;
- (h) Guiding principles for the Model Regulations;
- (i) Issues relating to the Globally Harmonized System of Classification and Labelling of Chemicals (including testing of oxidizing substances; simultaneous classification in physical hazards and possible combination of hazards);
- (j) Unified interpretations of the Model Regulations;
- (k) Implementation of the Model Regulations;
- (l) Dangerous goods safety training and capacity building;
- (m) United Nations 2030 Agenda for Sustainable Development;
- (n) Opportunities to enhance operational efficiency and inclusiveness.

## **XVII. Draft resolution 2023/... of the Economic and Social Council (agenda item 15)**

*Informal document:* INF.12/Rev.1 (Secretariat)

80. The Sub-Committee adopted without any objection part A of the resolution, dealing with its work during the biennium 2023-2024, based on a draft prepared by the secretariat in informal document INF.12/Rev.1. It was noted that a new twenty-third revised edition of the Model Regulations and a new eighth revised edition of the Manual of Tests and Criteria will be published in 2023.

## **XVIII. Election of officers for the biennium 2023-2024 (agenda item 16)**

81. Following the rules of procedures in document E/5715/Rev.2 for the election of officers for the next biennium, no request for a secret ballot was noted. The Sub-Committee re-elected Mr. D. Pfund (United States of America) as Chair and Mr. C. Pfauvadel (France) as Vice-Chair respectively, for the next biennium 2023-2024. Mr. Pfauvadel announced that due to his retirement end of 2023, he would no longer be available as chairperson as from 2024.

## **XIX. Other business (agenda item 17)**

### **A. New proposals**

#### **1. Classification of UN 2290 ISOPHORONE DIISOCYANATE**

*Informal document:* INF.10 (Cefic)

82. The representative of Cefic withdrew the proposal.

#### **2. Addition of special packing provisions of P200 to the dangerous goods list**

*Informal documents:* INF.13 (Republic of Korea)  
INF.18 (EIGA)

83. Although the Sub-Committee welcomed the intention of making the regulations easier to interpret, most of the experts who spoke were not convinced that reproducing the special

packing provisions of P200 in the dangerous goods list would represent an improvement. Some experts noted that they were open to including some explanatory text in 3.2.1 or to the solution in proposal 2 of informal document INF.18 (adding a generic text in column (9) of the dangerous goods list). The expert from Korea volunteered to prepare an updated proposal taking into account the comments received.

**3. Amendments to 2.0.3.1(g) footnote 3, 2.6.2.2.4.1 note and 2.8.2.4 on the precedence of hazard**

*Informal document:* INF.14 (Republic of Korea)

84. Some experts who took the floor supported in principle the proposal but preferred to take some additional time to further study the proposed amendments. Others questioned the need for such amendments. The expert from Korea offered to submit a new proposal including a more detailed justification.

**4. Clarification of the objects to which the provisions in special provisions SP 361 and SP 372 apply**

*Informal document:* INF.17 (China)

85. The Sub-Committee noted the need for clarification on the application of special provisions SP 361 and SP 372 for capacitors. One delegate expressed a view that capacitors can be exempted when they are configured in modules only when those paragraphs specifically include the text “including when configured in a module”. Acknowledging the differences in the text between SP 361 and SP 372, the Sub-Committee could not reach a determination of the appropriate classification of modules in all circumstances. The expert from China offered to submit a working document for consideration at the next session, taking into account the comments received.

**5. Industry guidelines for warehouses storing, handling, and consolidating dangerous goods**

*Informal document:* INF.29 (IVODGA)

86. The Sub-Committee welcomed the information by IVODGA on their “warehouse white paper” providing guidelines on storage and handling of dangerous goods in preparation for, or after, sea-transport.

**6. Amendment of Section 51.4.4.2 (e) of the Manual of Tests and Criteria**

*Informal document:* INF.32 (China)

87. A number of experts needed more time to study the proposal and preferred to defer consideration of this subject to the next session. The expert from China offered to submit for the next session an official document including a more detailed proposal for amendments.

**7. Suggestions for adjusting test temperatures of UN Test 3(c) and UN Test 4(b)**

*Informal document:* INF.33 (China)

88. The proposal received several comments and concerns as it seemed to be a significant amendment to the Manual of Test sand Criteria. The Sub-Committee invited the expert from China to submit for its next session a more detailed proposal, for consideration also by the Explosive Working Group.

**8. Transport classification of diesel fuel**

*Informal document:* INF.35 (China)

89. The Sub-Committee reaffirmed UN 1202 that does not meet the general classification criteria for flammable liquids in chapter 2.3 (e.g., those with a flash point exceeding 60 °C) were not subject to the Model Regulations, assuming they do not meet the criteria of any other hazard class.

**9. Refrigerating machines and heat pumps**

*Informal document:* INF.34 (Germany)

90. Even the fact that the hazards and conditions for the transport of refrigerating machines and heat pumps were similar, most experts who took the floor expressed their preference for a new UN number with a proper shipping name and special provisions for heat pumps. The expert from Germany volunteered to submit for the next session an official document taking into account the comments received.

**10. Amendment to packing instructions P902 and LP902**

*Informal document:* INF.40 (CLEPA)

91. Most experts who spoke were of the opinion that no clarification was needed as packagings of packing group I or II also conform to packing group III. It was acknowledged that a more general statement might be useful e.g. as a unified interpretation issue.

**B. Any other business**

*Informal document:* INF.55 (RPMASA)

92. The Sub-Committee noted the report of RPMASA on the South Africa Dangerous Goods supply chain task group concerning the implementation of the Model Regulations as well as of their capacity building and training activities.

**C. Tributes**

93. Learning that Mrs. Maureen Ruskin (United States of America) would retire soon and will no longer attend the sessions, the Sub-Committee expressed her its deep appreciation for the excellent contributions to the work of the Sub-Committee and wished her a long and happy retirement.

94. The Sub-Committee was informed that Mr. David Brennan (IATA) will take his retirement and would no longer attend the sessions. The Chair thanked him for his substantive contributions over many years to the activities of the Sub-Committee. The Sub-Committee offered Mr. Brennan its best wishes for a long and happy retirement.

**XX. Adoption of the report (agenda item 18)**

95. In accordance with established practice, the Sub-Committee adopted the report on its sixty-first session and its annexes on the basis of a draft prepared by the secretariat.

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