



**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 forty-seventh session**

held in Geneva from 22 to 26 June 2015

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I. Attendance

1. The Sub-Committee of Experts on the Transport of Dangerous Goods held its forty-seventh session from 22 to 26 June 2015.
2. Experts from the following countries took part in the session: Australia, Austria, Belgium, Brazil, Canada, China, Finland, France, Germany, Italy, Japan, Netherlands, Norway, 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 New Zealand, Peru, Romania and Slovakia 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 International Atomic Energy Agency (IAEA) and the International Maritime Organization (IMO) were also present.
6. Representatives of the following non-governmental organizations took part in the discussion on items of concern to those organizations: Association of Hazmat Shippers (AHS); Australian Explosives Industry Safety Group (AEISG); Compressed Gas Association (CGA); Cosmetics Europe; 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 Association of Automotive Suppliers (CLEPA); European Chemical Industry Council (CEFIC); European Compliance Organization for Batteries (EUCOBAT); European Industrial Gases Association (EIGA); European Liquefied Petroleum Gas Association (AEGPL); European Metal Packaging (EMPAC); Federation of European Aerosol Associations (FEA); Grain and Feed Trade Association (GAFTA); Institute of Makers of Explosives (IME); International Air Transport Association (IATA); International Association for Soaps, Detergents and Maintenance Products (AISE); International Bulk Terminals Association (IBTA); International Confederation of Container Reconditioners (ICCR); International Confederation of Drums Manufacturers (ICDM); International Confederation of Intermediate Bulk Container Associations (ICIBCA); International Confederation of Plastics Packaging Manufacturers (ICPP); International Council of Chemical Associations (ICCA); International Dangerous Goods and Containers Association (IDGCA); International Fibre Drum Institute (IFDI); International Fishmeal and Fish Oil Association (IFFO); International Organization for Standardization (ISO); International Paint and Printing Ink Council (IPPIC); International Vessel Operators Dangerous Goods Association (IVODGA); KiloFarad International (KFI); Portable Rechargeable Battery Association (PRBA); Responsible Packaging Management Association of Southern Africa (RPMASA); Sporting Arms and Ammunition Manufacturers' Institute (SAAMI); and Stainless Steel Container Association (SSCA).

II. Adoption of the agenda (agenda item 1)

<i>Documents:</i>	ST/SG/AC.10/C.3/93 (Provisional agenda) ST/SG/AC.10/C.3/93/Add.1 (List of documents)
<i>Informal documents:</i>	INF.1, INF.2 (List of documents) INF.15 (Provisional timetable) INF.36 (Reception by NGOs)

7. The Sub-Committee adopted the provisional agenda prepared by the secretariat after amending it to take account of informal documents (INF.1 to INF.58).

III. Explosives and related matters (agenda item 2)

8. Following preliminary consideration in the plenary, most of the questions under this agenda item (as well as those concerning sub-item 10 (g)) were referred to the Working Group on Explosives, which met from 22 to 25 June 2015 under the chairmanship of Mr. E. de Jong (Netherlands).

Report of the Working Group on Explosives

Informal document: INF.53

9. When considering the report of the Working Group, the Sub-Committee took the decisions recorded in paragraphs 10 to 28 below.

Guidelines on working procedures for the Working Group

Document: ST/SG/AC.10/C.3/2015/1 (Chairman of the Working Group)

10. The Sub-Committee noted that the Working Group had agreed to try to work within the guidelines proposed by the Chairman.

A. Tests and criteria for flash compositions

Effectiveness of US and HSL modified plugs for the HSL flash composition test

Documents: ST/SG/AC.10/C.3/2014/72 (Japan)
ST/SG/AC.10/C.3/2015/12 (United Kingdom)

Informal document: INF.28 (Japan)

11. The Sub-Committee noted that the Working Group supported the changes proposed in INF.28. The Sub-Committee agreed that the expert from Japan submit a formal proposal for the forty-eighth session and that the expert from the United Kingdom prepare a formal proposal for acceptance of the modified plug design and continue investigating the variability issue.

B. Review of Test Series 6

Recommendations for improvement of Test Series 6

Informal document: INF.10 (IME)

12. The Sub-Committee agreed that the Working Group revisit the listing provided by IME during the forty-eighth session and that work continue on the review of Test Series 6 as described in paragraph 5 of the Working Group's report (INF.53).

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

1. Koenen Test

Documents: ST/SG/AC.10/C.3/2015/2 (IME and AEISG)
ST/SG/AC.10/C.3/2015/4 (Germany)

Informal documents: INF.3 (IME and AEISG)
INF.40 (France)

13. The Sub-Committee agreed that IME and AEISG consider the comments of the Working Group and prepare a revised proposal for a future session. The Sub-Committee noted that the expert from Germany would continue research into replacement materials for the unavailable tube steel and that the expert from France would continue to search for a suitable replacement for dibutyl phthalate taking into account the heat capacity as part of the specification.

2. UN standard detonator

Document: ST/SG/AC.10/C.3/2015/26 (Germany)

Informal document: INF.37 (Germany)

14. The Sub-Committee noted that Germany and IME would consider the comments of the Working Group and continue their research into a suitable alternative for the current standard detonator.

D. Review of packing instructions for explosives

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

E. Harmonized standard for security markings

Informal document: INF.9 (IME)

16. For the question of a globally harmonized standard for explosives security markings (paragraph 17 of the Working Group's report), opinions were still divided as to whether or not such a standard should be included in the Model Regulations since some experts felt that the standard was related to the security of explosives in general and not particularly to security during transport. Nevertheless, the Sub-Committee agreed that it could provide a forum for discussing the development of such a standard, and as a consequence the participation of interested stakeholders such as the European Commission or representatives of national departments concerned other than transport departments would be most welcome. If this work could lead to the elaboration of a harmonized standard acceptable to the relevant entities, the Sub-Committee could consider at a later stage whether or not it would be appropriate to include it in the Model Regulations.

F. Classification of fireworks

Informal document: INF.9 (IME)

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

G. Classification of articles under UN 0349

Document: ST/SG/AC.10/C.3/2015/86 (Italy)

Informal documents: INF.47 (IME)
INF.38 (Sweden)

18. For the question of UN 0349 articles that may be subject to Chapter 1.4 security requirements raised by the expert from Italy, the Sub-Committee noted that, while there was sympathy in the Working Group for the problem, opinions were divided and there was no consensus. The Sub-Committee could not provide a solution but felt that creating new entries, as suggested by Italy, would not be appropriate.

19. For the question of including UN No. 0339 in the list of high consequence dangerous goods, the Sub-Committee noted that the Working Group did not endorse the proposal to add UN No. 0339 to the indicative list and that the expert from Sweden would consider the comments and might return with a revised proposal at a later date.

20. The Sub-Committee considered that it would be useful to provide a list or examples of the substances and articles concerned. Experts who would have suggestions were invited to communicate with the experts of Italy and Sweden. It was also suggested that guidance could be included in Chapter 1.4 of the Model Regulations.

H. Review of Chapter 2.1 of the GHS

21. The Sub-Committee endorsed the amendments proposed by the Working Group as “Amendments 1 – 3” in annex 2 to its report. Nevertheless it was agreed to place amendment 1 between square brackets for confirmation at a later stage. It was underlined that in any case, these proposed amendments had to be submitted to the GHS Sub-Committee for consideration (see annex 1 to this report).

22. The Sub-Committee noted that the Working Group did not adopt the amendments proposed in paragraphs 12 – 14 of ST/SG/AC.10/C.3/2015/27 as more work needed to be done. Members of the Working Group, under the guidance of the Working Group Chairman, will work intersessionally to develop suggested revisions to further improve Chapter 2.1 of the GHS. Members of the GHS Sub-Committee will be invited to participate in this intersessional work.

I. Miscellaneous

1. UN No. 3375 Ammonium nitrate emulsions (ANEs) and Special Provision 309

Document: ST/SG/AC.10/C.3/2015/10 (AEISG)

23. The Sub-Committee endorsed the Working Group’s decision not to adopt the proposal to remove competent authority approval from Special Provision 309, as most indicated that this approval was the mechanism by which competent authorities maintained oversight of the use of UN No. 3375 for transport of ANEs.

2. Classification by analogy

Document: ST/SG/AC.10/C.3/2015/13 (SAAMI)

24. The Sub-Committee encouraged SAAMI to consider the Working Group’s comments and to return at the forty-eighth session with additional thoughts for consideration. The representative of SAAMI requested that interested parties contact him

and identify their willingness to work with SAAMI on the further development of the proposal for the December session.

3. Transport of water-wet (9 – 25%) PETN

Informal document: INF.8 (Spain)

25. The expert from Spain said that she would consider the Working Group comments and the additional data to be provided by Germany and that she would consider submitting a proposal for the next session if data are made available in due time or, otherwise, for the forty-ninth session.

4. Transport of energetic samples for further testing

Informal document: INF.29 (CEFIC)

26. CEFIC was encouraged to continue the work and to submit a proposal once the testing foreseen in paragraph 18 of the Working Group report is done and such a proposal could be developed.

5. Transport provisions for UN No. 0501 propellant, solid, 1.4C

Informal document: INF.41 (United States of America)

27. The Sub-Committee noted that the Working Group could find no logical reason why UN No. 0501 is forbidden by air transport and other 1.4C entries are allowed and that it could identify no significant differences between the risks of UN No. 0501 and the other 1.4C entries. The Sub-Committee invited ICAO to review the issue further and address it with an appropriate proposal.

6. Classification procedures relating to liquid and solid desensitized explosives under UN No. 3379 and 3380, and criteria for exclusion of energetic substances

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

28. The Sub-Committee noted that there was significant support within the Working Group to clarify the issues described and agreed that a correspondence working group led by the United States of America could review them and develop proposals for consideration at a future session.

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

A. Sodium dithionite (UN No. 1384)

Document: ST/SG/AC.10/C.3/2015/3 (Canada)

29. Several experts opposed the proposal to add the word “SOLID” to the proper shipping name, in particular as the physical state was not generally mentioned for pure substances unless the name covered several isomers with differing properties. Furthermore, in accordance with 2.0.2.5, UN No. 1384 should not be used for solutions of solid substances. After discussion, the expert from Canada withdrew his proposal.

B. Classification of seed cake (UN Nos. 1386 and 2217)

Document: ST/SG/AC.10/C.3/2015/7 (Germany)

30. Several delegations considered that the proposal from Germany had too broad a scope, as the proposed special provision would amount to considering, by default, that substances that were not oily, such as beet pulp or crushed rice, were substances under Division 4.2, unless tests prove otherwise. Other delegations considered that organic material possessing a self-heating hazard would already be covered by UN No. 3088 and that the more specific seed cake entry should be maintained. They considered that studies of current accident data did not justify such an approach.

31. The expert from Germany withdrew her proposal but said that she might raise the question at a later session.

C. Use of ethoxyquin to stabilize fish meal (UN No. 2216)

Document: ST/SG/AC.10/C.3/2015/14 (IFFO)

32. The Sub-Committee noted that ethoxyquin, which had been used for many years to prevent spontaneous heating of fish meal during transport, could become a residue in the meat of animals foddered with the fish meal. The levels could exceed those accepted under laws on food additives currently in force or in preparation in some countries, in particular those of the European Union.

33. The entire Sub-Committee therefore encouraged IFFO to continue to seek solutions that would reduce the concentrations from those currently used or would use other antioxidants. The Sub-Committee further recommended to include tests to determine self-heating properties. Interested delegations could send their comments to the IFFO representative, who would keep them informed of the test results and the work under way and would submit a new document at the next session with a progress report on the work.

D. Application of the criteria for environmentally hazardous substances to articles containing them

Document: ST/SG/AC.10/C.3/2015/8 (Germany)

34. Views differed on the question, as the criteria for classification of most classes of dangerous goods applied to the goods, not to objects containing such substances. In addition, the question of vehicles, motors or machines containing dangerous goods was also discussed. It was suggested that the question whether text on the classification of objects containing environmentally hazardous substances should be included in the Model Regulations should be raised under agenda item 6 (a), during the discussion of informal document INF.7, from the United Kingdom.

E. Substances which could be identified as toxic and corrosive

Document: ST/SG/AC.10/C.3/2015/11 (Republic of Korea)

35. The Sub-Committee noted the opinion of the expert from the Republic of Korea, who had said that according to information from the risk profiles established by GESAMP (the Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection, circular PPR.1/Circ.1 of the International Maritime Organization (IMO)), some substances

on the list of the Model Regulations should be able to be assigned additional risks of Division 6.1 or Class 8.

36. Several delegations underscored, however, that the suggested reclassifications would have far-reaching implications and that detailed data was usually provided to justify such changes.

37. The expert from the Republic of Korea was thus invited to provide the information required by the form contained in Figure 1 of the Recommendations for each of the substances in question if she wished to follow up on those suggestions.

F. Special provision 335

Document: ST/SG/AC.10/C.3/2015/17/Rev.1 (Norway)

38. Several delegations considered that the proposed amendments would have serious repercussions, and they were reluctant to amend a text that had been carefully drafted. The expert from Norway said that it was his intention to clarify the text, not to change its spirit. In the light of the comments, he withdrew his proposal.

G. Packaging requirements for infectious waste of UN No. 3291

Document: ST/SG/AC.10/C.3/2015/18 (Switzerland)

Informal document: INF.51 (Switzerland)

39. The Sub-Committee recognized that some provisions should be amended to avoid contradictions. However, it requested the expert from Switzerland to submit a new proposal, taking into consideration the comments made. The expert submitted a new proposal in informal document INF.51 which was adopted (see annex 2).

H. Substances transported as solids which are filled as liquids and solidify during or before transport

Document: ST/SG/AC.10/C.3/2015/24 (DGAC)

40. Some delegations endorsed the principle of addressing the issue, but there was no support for the proposed amendments as drafted. The representative of DGAC said that he might raise the question at a future session.

I. Special provisions for the transport of consumer and pharmaceutical products containing ethyl alcohol

Document: ST/SG/AC.10/C.3/2015/25 (AHS)

Informal document: INF.14 (AHS)

41. The Sub-Committee noted that the products in question were covered by exemptions under special permits in the United States of America. According to AHS and the expert from the United States, experience had shown that such products, like alcoholic beverages, could be transported safely under alternative provisions that addressed the packaging, quantity and hazard communication. However, a large majority of the Sub-Committee's experts opposed in principle extending the exemptions currently applicable to alcoholic

beverages to such types of products, as the industry could already use the partial exemptions of limited and excepted quantities.

42. The representative of AHS withdrew his proposal and said that he intended to submit a new one, taking into consideration the various comments made.

J. Allowance for dangerous goods in excepted quantities in chemical kits and first aid kits

Informal document: INF.11 (IATA)

43. Most of the experts were in favour of the proposal which would amount to allowing on board passenger aircraft chemical kits and first aid kits containing dangerous goods in quantities accepted under the provisions for excepted quantities on board such passenger aircraft. The Sub-Committee invited the representative of IATA to submit an official proposal at the next session, clarifying the criteria for acceptance. It was recalled that the Sub-Committee had for three years been awaiting an ICAO document on the guidelines for the assignment of E codes (agenda item 9 (a)).

K. List of self-reactive substances

Informal document: INF.26 (CEFIC)

44. The representative of CEFIC was asked to submit his proposal to include a new substance in the list under 2.4.2.3.2.3 as an official document, with data for the justification.

L. Additional criteria for polymerizing substances

Informal document: INF.27 (CEFIC)

45. Several experts indicated that they were *a priori* in favour of drawing up screening procedures for the classification of polymerizing substances, as long as such procedures were reliable. The representative of CEFIC was thus invited to prepare an official proposal for the next session.

V. Electric storage systems (agenda item 4)

A. Lithium battery tests

Report of the informal working group on UN lithium battery tests

Informal document: INF.16 (France, RECHARGE, PRBA and COSTHA)

46. The Sub-Committee considered the group's eight requests for guidance contained in the informal document.

47. Regarding request number 1, some delegates were of the opinion that originally, paragraphs (a) and (b) of special provision 188 had been intended to be independent of one another, which would mean that the limit stipulated in paragraph (a) individually for each cell did not apply to cells contained in a battery. Such an interpretation would also make it possible to solve the problem of verifying during transport that such cells, contained in a battery, were in conformity with the limits. However, there were differences of opinion on

that question, and the Sub-Committee had requested that industry representatives should provide the informal working group with more details about current practices and information on the risks involved if the limit established in paragraph (a) was exceeded, without the limit in paragraph (b) being exceeded for the entire battery.

48. For numbers 2 and 3, several experts considered that, while there was no need to assign new UN numbers, the description could be further developed so as to better define the cells and batteries in question. However, in the light of the speed with which the technology was changing, a special provision should perhaps be included with a more generic description that could cover different possibilities. Informal document INF.13/Rev.1, from the Republic of Korea, could be considered from that perspective as well.

49. For number 4, several experts said that it would be useful to first consider whether the current test regime was appropriate for hybrid batteries, or if different tests should be developed for them. Depending on which test regime would be appropriate, either such batteries should be assigned to existing numbers, or specific, new entries should be created.

50. For number 5, most experts were for the time being not in favour of requiring certificates of compliance issued by the competent authorities or by bodies in accordance with the ISO 17020 standard. However, the Sub-Committee generally supported a formalization of test reports, which could be made available to those concerned or to the competent authorities for purposes of supervision or investigation.

51. For number 6 (internal short circuit test), the Sub-Committee noted that the work would continue. For number 8, the Sub-Committee accepted that the informal working group should take up the question of the use during the test of resettable circuit interrupt devices.

52. Number 7 was considered under agenda item 4 (d), at the same time as document ST/SG/AC.10/C.3/2015/20.

53. The Sub-Committee noted that the next session of the informal working group will be hosted by PRBA from 26-28 August 2015 in Washington D.C. Delegates interested in participating should contact the representative of PRBA.

B. Large batteries

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

C. Thermal batteries

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

D. Miscellaneous

1. Amendments to special provision 376 for damaged or defective cells or batteries

Document:

ST/SG/AC.10/C.3/2015/20 (PRBA)

56. Most experts were not in favour of the proposed new wording, although they recognized that it would be useful to provide a better definition of defective or damaged batteries. It would, however, be difficult in a special provision to cover all the possible cases in the light of the variety of cells and batteries and of their sizes. Some experts were in favour of the informal working group drawing up guidelines to facilitate interpretation of

the current provisions, in particular for intermediate levels of damage. It was also pointed out that batteries that were functionally defective were not necessarily defective from the point of view of safety.

57. The Sub-Committee agreed that the informal working group should examine the question but recalled that, at least in spirit, the group should restrict its work to its mandate, and specifically to providing opinions on safety questions. It should refrain from concentrating on proposing amendments of regulatory requirements.

2. Special provision 310

Document: ST/SG/AC.10/C.3/2015/28 (Austria)

58. The proposed amendment was adopted and also applied to the second part of the sentence (see annex 2).

3. New proper shipping names for rechargeable lithium metal batteries

Informal document: INF.13/Rev.1 (Republic of Korea)

59. The Sub-Committee noted that new types of rechargeable lithium metal batteries had been designed and that the volume transported would increase substantially. However, most experts considered that the current test regimes could apply to the new cells and batteries and that the current UN numbers and proper shipping names could also be used, perhaps with the proviso that the descriptions of entries would be amended, as mentioned during the discussion of the report of the informal working group on UN lithium battery testing requirements (see para. 48). It was thus suggested that the question should be taken up by the informal working group.

4. Meaning of “equipment” for the purposes of special provision 188 and packing instruction P903

Informal document: INF.35 (IATA)

60. Most delegations were in favour of the proposed clarifications and emphasized that it would also be useful to clarify the meaning of “cells contained in equipment”. The representative of IATA was requested to submit an official proposal at the next session.

VI. Transport of gases (agenda item 5)

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

Informal document: INF.22 (CGA)

61. A lunchtime working group was convened to discuss the follow-up to the actions mentioned in paragraph 4 (a) to (d). The working group will continue exchanging information by correspondence. Members of the Sub-Committee wishing to participate in these discussions may contact the representative of CGA. A more detailed report might be submitted at the next session.

B. Miscellaneous

1. Insertion of references to new standards in 6.2.2

Document: ST/SG/AC.10/C.3/2015/9 (ISO)

Informal document: INF.32 (CGA)
INF.54 (ISO, EIGA and CGA)

62. Proposals 1 and 3 from ISO were adopted. The representatives of ISO, EIGA and CGA proposed an alternative to proposal 2 concerning the application of ISO standard 22434:2006 in informal document INF.54 which was adopted (see annex 2).

2. Transport of gas tanks for motor vehicles

Document: ST/SG/AC.10/C.3/2015/5 (Germany and France)

Informal document: INF.52 (secretariat)

63. The Sub-Committee welcomed the initiative from Germany and France since the number of gaseous-fuelled vehicles was increasing and tanks containing gas for use in vehicles were sometimes carried separately for various reasons.

64. However, several delegations made comments on the details of the proposal, such as the relevance of using UN No. 1954, the circumstances in which such tanks might be carried, the ISO standards referred to, the status of application of the ECE Regulations and the global technical regulations (subsequently provided by the secretariat in informal document INF.52), the possibility of referring to other national standards, the need to take liquefied natural gas (LNG) into account, the use of steel tanks, filling limits, the equivalence of safety levels between the requirements of the Model Regulations for pressure receptacles and those of vehicle construction regulations and standards, etc.

65. The experts from Germany and France would submit a new proposal taking the comments into account.

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

A. Dangerous goods in machinery, apparatus or articles, N.O.S.

Informal document: INF.7 (United Kingdom)

66. Many delegations provided comments on the informal document and the expert from the United Kingdom would take them into account in drawing up an official proposal for the next session with the help of those delegations interested in cooperating.

B. Articles containing small quantities of dangerous goods

Proposed correction to 1.1.1.9

Informal document: INF.18 (Russian Federation)

67. Most delegations did not consider it absolutely necessary to mention lamps containing dangerous substances rather than lamps containing dangerous goods and were thus not in favour of the proposed correction. The expert from the Russian Federation took note of the comments and said he would consider the follow-up to be given.

C. Marking and labelling

1. Appropriate hazard communication – Elevated temperature substances and environmentally hazardous substances

Document: ST/SG/AC.10/C.3/2015/16 (United Kingdom)

68. Most delegations were of the opinion there was no need to modify the current system for marking packaging and transport units carrying the substances in question and were concerned for various reasons that the proposed new labelling system would engender significant confusion and problems in its practical application. The proposal was withdrawn and will not be followed up.

2. Revision of 5.2.2.2.2

Informal document: INF.19 (Russian Federation)

69. Some experts were not convinced of the need to modify the presentation of the labels in 5.2.2.2.2, while others thought it would be better given in table form either in the Model Regulations or as a guidance document. The expert from the Russian Federation was asked to draw up an official proposal in consultation with the secretariat to ensure the feasibility of the proposed presentation in view of the printers' requirements.

D. Packagings

1. Proposed correction to the French version of 6.1.3.1 (d)

Document: ST/SG/AC.10/C.3/2015/22 (Canada)

70. The proposed correction was adopted. The other linguistic versions should be checked by the secretariat.

2. Temperature during the internal (hydraulic) pressure test on plastics packagings and plastics IBCs

Document: ST/SG/AC.10/C.3/2015/15 (Germany)

Informal document: INF.46 (Norway)

71. Opinions were divided on the German proposal to require a minimum temperature of 12 °C for the hydraulic pressure test on plastics packagings and IBCs, as well as on the suggestion by Norway to allow in addition a correction factor for the internal pressure to be applied when the temperature is higher than 12 °C. Some experts could support this proposal as it would improve the comparability of test results. Some were in favour of adding a correction factor as it would further improve this comparability. Others felt that it was not justified by safety considerations. The Sub-Committee agreed that this question could be further considered at the next session on the basis of a new proposal which would address the issues raised such as safety justification, justification for the choice of the minimum temperature of 12 °C, how to measure the temperature, extension to composite packagings/IBCs, grand-father clause for existing design type approvals, etc.

3. Packing instructions P620 and P650 for Division 6.2 infectious substances

Informal document: INF.20 (Norway)

72. The expert from Norway explained the problems recently encountered regarding the use of packagings in the context of the epidemic outbreak of Ebola in West Africa. Regarding the questions asked in paragraphs 9 to 12 of the document, the view of the majority of experts was that:

- (a) The additional requirement 3 in P620 should remain in P620 as a capability requirement with which compliance need not be proven by the performance design type tests of Chapter 6.3;
- (b) The requirements set for temperature differences and pressure differentials should be considered separately; these requirements are intended for packagings to be used in multimodal transport, including air transport but if needed other requirements could be developed for packagings intended for surface transport only.
- (c) The requirements of P650 (6) and P650 (7) (e) are capability requirements that need not be documented.

E. Portable tanks

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

F. Other miscellaneous proposals

1. Application of the exemption in 1.1.1.9 to lamps containing mercury

Document: ST/SG/AC.10/C.3/2015/19 (Switzerland)

Informal document: INF.33 (Austria)

74. The Sub-Committee did not agree to amend special provision 366 as proposed by Switzerland because, in accordance with special provision 366, lamps containing not more than 1 kg or mercury are not subject to land and sea dangerous goods transport regulations and those containing not more than 15 g mercury are not subject to air dangerous goods transport regulations.

2. Review of the wording of certain amendments to the 18th revised edition of the Model Regulations

Informal documents: INF.12 and INF.55 (IATA)

75. Several experts felt that the proposal from IATA was again intended to address questions of the respective responsibilities of consignors and carriers, while the paragraphs in question applied to transport in general, including consignment and effective transport. It was also noted that there were currently inconsistencies throughout the Model Regulations as to the way to express that certain dangerous goods are not authorized for transport, and therefore these issues should rather be raised in an official document that could bring more consistency in the terminology used.

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

A. Definition of “Reference steel”

Informal document: INF.30 (Romania)

76. The observer from Romania was invited to submit his proposal to move the definition of “Reference steel” that can be found three times in Chapter 6.7 to Chapter 1.2 through an official document at the next session. He was also invited to check that the definition given in Chapter 6.7 would also be valid when the term is used in other chapters, for example in 6.5.5.1.6 for IBCs.

B. Transport of toxic powdered metals

Informal documents: INF.34 (France)
INF.49, paras 3.30 – 3.32 (IMO)

77. The Sub-Committee noted that some flammable powders offered for transport possess a toxic by inhalation hazard and should therefore be classified in division 6.1 according to the precedence of hazard table, but no relevant n.o.s. entry was available for this specific case. The Sub-Committee invited the expert from France to prepare an official proposal for such an entry with the relevant transport conditions, applicable to inorganic solids such as metal powders. Some experts said they would need more time to check the toxicity data available for such powders to ascertain that a new entry is really needed.

C. Recommendations made by the ICAO Dangerous Goods Panel (DGP-WG/15)

Informal document: INF.42 (ICAO)

78. For paragraphs 3 and 6 of this document concerning the inclusion of requirements of mandatory nature in notes and footnotes, it was recalled that this had been discussed at previous sessions. The Sub-Committee was aware that ICAO had established its own policy regarding the respective legal value of standard text, notes and footnotes which was applied consistently through all ICAO instruments, but this policy was not necessarily valid in international treaties or other legislations. Therefore it was up to ICAO to decide how best to reflect the texts contained in the notes and footnotes of the Model Regulations.

79. The Sub-Committee felt that the additional text proposed by ICAO in the NOTE at the very end of section 6.1.3 was not necessary because the examples given in 6.1.3.10 to 6.1.3.12 were just examples and the ICAO concern was already covered by paragraph 6.1.3.7.

80. For special provision 378, it was recalled that the text of the statement required in the transport document was intended to facilitate multimodal transport and deviation from that text would not facilitate the use of air transport documents in a multimodal transport chain. Regarding the replacement of the word “transported” by “offered for transport”, it was recalled that the Model Regulations are not intended to define the respective responsibilities of consignors and carriers, but rather to lay down proper conditions of transport under which dangerous goods may be safely transported.

81. For the question of calculation of the transport index, Chapter 1.5 of the Model Regulations refers to the IAEA Advisory Material and therefore extracting guidance from this advisory material to reflect it in the ICAO Technical Instructions did not appear to be a problem, but amending the UN Model Regulations accordingly would preferably require a proposal by IAEA.

D. Report of the thirty-third session of the IMO Editorial and Technical Group

Informal document: INF.49 (IMO)

82. For paragraphs 2.2 and 2.3, it was recalled that special provisions 325 and 326 had been assigned to a number of entries of class 7 to avoid uranium hexafluoride being transported under such entries to which uranium hexafluoride could also logically be assigned. However UN Nos. 3332 and 3333 were intended for the transport of “special form” radioactive material, and transport of uranium hexafluoride as “special form” was not an expected option, therefore there was no need to assign special provision 325 or 326 to these entries.

83. The corrections suggested in paragraphs 2.7 and 3.7 were deemed appropriate (see annex 3), and the one suggested in paragraph 2.8 had already been reflected in the 19th revised edition of the Recommendations.

84. The requirement for the indication of the emergency and control temperatures in the transport document when polymerizing substances are transported under temperature control seemed to be logical (by analogy with temperature-controlled organic peroxides and self-reactive substances) but some delegations felt that this should be considered on the basis of an official proposal (paragraphs 3.9 to 3.11). Similarly, the concern expressed in paragraph 3.8 should be better explained and addressed through a concrete amendment proposal.

85. The Sub-Committee noted the invitation to further consider the issue of lithium batteries in the light of paragraphs 3.12 to 3.14, but this would also require concrete proposals from interested experts.

86. For paragraphs 3.20 and 3.21, the expert from Germany said that, in the light of the published version of the 19th revised edition of the UN Recommendations, the concerns expressed should be ignored as the instructions in ST/SG/AC.10/42/Add.1 had not been understood by the Editorial and Technical Group.

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

Outcome of TRANSSEC 30

Informal document: INF.48 (IAEA)

87. The Sub-Committee took note of the information provided on the outcome of the thirtieth session of the IAEA Transport Safety Standards Committee.

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

Updating of the Guiding Principles

Informal document: INF.43 (Secretariat)

88. The secretariat explained that the Guiding Principles which are made available on the UNECE website have to be updated to take account of the 19th revised edition of the Recommendations. INF.43 contained draft amendments to that effect, and members of the Sub-Committee were invited to check them and to provide feedback to the secretariat before 3 July 2015 if necessary. After this date, the updated version of the Guidelines will be posted on the website.

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

A. Criteria for water-reactivity

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

B. Tests and criteria for oxidizing liquids and solids

Document: ST/SG/AC.10/C.3/2015/6 (France)

Informal document: INF.39 (France)

90. The Sub-Committee took note of the progress report on the Round Robin testing programme for Tests O.2 and Tests O.3.

C. Classification criteria for flammable gases

Informal documents: INF.5 (Belgium and Japan)
INF.58 (United States of America)

91. The Sub-Committee took note of the progress made by the Joint TDG/GHS informal working group dealing with categorization for flammable gases, and noted that a new session of the informal working group was scheduled for 8-10 September 2015 in Brussels.

92. The Sub-Committee agreed that the issues mentioned in informal document INF.58 could also be addressed by the informal working group, subject to concurrence by the GHS Sub-Committee.

D. Expert judgement/weight of evidence

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

E. Corrosivity criteria

Document: ST/SG/AC.10/C.3/2015/21 (Canada)

Informal documents: INF.24 (Spain)
INF.25 (CEFIC, AISE)

94. The proposal by Canada to revise Chapter 2.8 of the Model Regulations and the related proposals by Spain, CEFIC and AISE led to long discussions which led the Sub-Committee to convene a lunchtime working group to discuss and decide on the way forward.

95. The conclusions of the Sub-Committee following discussions in the working group were that:

- (a) The GHS corrosivity criteria as written in table 3.2.1 of the GHS have been adequately transposed into the Model Regulations;
- (b) The Sub-Committee is in favour of the use of alternative methods to avoid testing but the current methods in the GHS are not sufficiently precise to adequately assign substances and mixtures to the existing GHS sub-categories 1A, 1B, 1C or to the appropriate transport packing groups;
- (c) As assignment to packing groups has considerable economic and safety impact on transport of dangerous goods, it is essential to find a solution that would guarantee the current level of safety without a too restrictive conservative classification;
- (d) The pH approach is deemed inadequate for assignment of packing groups; there is general support for the bridging principles approach; there is also support for the additivity method but the current parameters lead to a too stringent assignment to packing groups;
- (e) Since the packing groups are transport specific, it was suggested that the work should be performed by the TDG Sub-Committee. However it was recalled that:
 - (i) Sub-categories 1A, 1B and 1C had been developed for the needs of the transport sector (Packing group I, II and III);
 - (ii) In accordance with the building block approach, sectors were free to select the hazard categories to be regulated, but not to alter the cut-off values or concentration limits or decision making scheme;
 - (iii) Now that these sub-categories 1A, 1B and 1C exist, other sectors might be interested in using them as well, and therefore it would be preferable that the cut-off limits for packing groups correspond to those of sub-categories 1A, 1B and 1C.
- (f) In order to determine a reliable method that would lead to classification as close as possible to the current transport packing group classification, the GHS Sub-Committee should be asked:
 - (i) Whether it is possible to modify the current parameters of the additivity method;
 - (ii) If not, whether it could provide advice on the possibility to include additional parameters that could be used only in the context of transport, and

it could provide assistance to the TDG Sub-Committee for a closer match between sub-categories 1A, 1B and 1C and transport packing groups.

96. Following these conclusions, the expert from Canada who had considered withdrawing his proposal said that he would maintain it on the agenda of the GHS Sub-Committee as he would like to obtain answers to the questions asked therein. The experts from Canada, Spain and CEFIC were encouraged to keep working on their proposals.

F. Updating of references to OECD Guidelines

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

G. Use of the Manual of Tests and Criteria in the context of the GHS

Document: ST/SG/AC.10/C.3/2014/61 (Secretariat)

Informal documents: INF.6 (Netherlands)
INF.21 (Working Group Chair)
INF.31 (Canada)
INF.53 (Report of the Working Group on Explosives)
INF.44 (46th session) (Secretariat)
INF.8 and Add.1–5 (45th session) (Secretariat)

98. These documents were referred to the Working Group on Explosives (see also para.8). The Sub-Committee took note of the progress made by the Working Group in reviewing the Manual of Tests and Criteria for its use in the context of the GHS, as described in paragraph 21 of the report INF.53. It noted that the outcome of the discussions will be taken into account by the secretariat for the preparation of a new consolidated proposal that will be based on the 6th revised edition of the Manual and will be used for further work.

H. Joint work with the GHS Sub-Committee

Informal document: INF.56 (Secretariat)

99. The Sub-Committee noted that the experts from Belgium, France and the United Kingdom had submitted a proposal for joint work at the last session of the Committee (Committee's informal document INF.3) which had been agreed subject to concurrence by both sub-committees (ST/SG/AC.10/42, para .16). The proposed possible arrangements for scheduling meetings for such joint work (ST/SG/AC.10/42, para.17) had also been endorsed by the Council.

100. The Sub-Committee agreed that such joint work would enhance cooperation and, subject to agreement by the GHS Sub-Committee, such joint work could start at the next session on a trial basis. Possible areas of joint interest were corrosivity criteria, criteria for flammable gases, explosives, the Manual of Tests and Criteria, labelling/placarding issues, and in fact all documents bearing a double symbol. The Sub-Committee felt that the topics could be selected by the officers of both sub-committees just after the deadline for submission of documents. The officers could also evaluate the time needed for joint work (which would, in any case, be not more than a full day). The methods of work could also be discussed at the first session and adapted as necessary after experience has been gained.

I. Miscellaneous

1. Prohibition in transport of non-transport GHS pictograms when not in a complete GHS label

Document: ST/SG/AC.10/C.3/2015/23 (DGAC)

101. Several experts expressed support for the DGAC proposal, or at least its principle as it would be highly desirable to avoid unnecessary over-placarding of cargo transport units that could mislead emergency responders. However several experts felt that it would not be appropriate to include provisions in the Model Regulations that would be in conflict with the legal requirements of other sectors. This might be resolved by introducing the GHS text as a NOTE. It was also suggested that the problem raised could be linked to improper enforcement practices and that guidance for cargo transport units in the GHS, similar to guidance that is available in annex 7 for labelling of packagings, could be useful.

2. GHS labels in transport on combination packagings containing multiple goods not subject to transport of dangerous goods regulations

Informal document: INF.17 (DGAC)

102. The Sub-Committee noted that DGAC had submitted a proposal to the GHS Sub-Committee in this respect (ST/SG/AC.10/C.4/2015/4).

XII. Other business (agenda item 11)

A. Resolution of the Economic and Social Council

103. The Sub-Committee was informed that the Economic and Social Council had on 8 June 2015 adopted the resolution that the Committee had prepared at its seventh session, on 12 December 2014 (as reproduced in annex IV of the report published under symbol ST/SG/AC.10/42 and in the first part of the report of the Secretary-General to the Economic and Social Council, published under the symbol E/2015/66).

104. The Sub-Committee thanked the secretariat for having already published, in English and French, the nineteenth revised edition of the Recommendations on the Transport of Dangerous Goods, Model Regulations and the sixth revised edition of the GHS.

B. Evaluation of the global and regional impact of the United Nations Economic Commission for Europe regulations and United Nations recommendations on the transport of dangerous goods

Informal document: INF.44 (Secretariat)

105. The Sub-Committee noted that the secretariat, as part of its activities evaluating the relevance, effectiveness and impact of its various programmes of work, had chosen to evaluate activities relating to the transport of dangerous goods in 2015, including those carried out specifically by the United Nations Economic Commission for Europe, but also those of the Sub-Committee, whose secretariat services were provided by the United Nations Economic Commission for Europe secretariat. The secretariat had recruited a consultant, Mr. Robert Martin Castle, a former member of the delegation of the United Kingdom, who should submit his report by the end of 2015.

106. All the members and observers of the Sub-Committee and the representatives of governmental and non-governmental organizations were invited to take part by responding

to the questionnaires that would be drawn up by the consultant and providing, to the extent possible, statistics or data to enable an evaluation of the effective impact of the United Nations Recommendations.

C. Proposals of corrections to the 19th revised edition of the Recommendations on the Transport of Dangerous Goods, Model Regulations

Informal document: INF.4/Rev.1 and INF.57 (Secretariat)

107. The Sub-Committee endorsed the corrections proposed by the secretariat (see annex 3).

D. Tribute to Mr. P. Huurdeman

108. The Sub-Committee was informed that Mr. Huurdeman (Netherlands) would retire soon and this session was his last one. He had participated in the work of the Sub-Committee since 1985, as well as in the work of other bodies concerned with the transport of dangerous goods, notably the RID/ADR/ADN Joint Meeting. The Sub-Committee wholeheartedly thanked him for his outstanding contribution and wished him well for a long and happy retirement.

XIII. Adoption of the report (agenda item 12)

109. The Sub-Committee adopted the report on its forty-seventh session and its annexes on the basis of a draft prepared by the secretariat.

Annex I

Draft amendments to chapters 1.3 and 2.1 of the GHS to be proposed to the GHS Sub-Committee

Amendment 1

Chapter 1.3

[1.3.2.2.1 Add a new last sentence to read as follows: “In special cases, such as for explosives, alternative classification principles may apply.”.]

(References: ST/SG/AC.10/C.3/2015/27, para. 9 and informal document INF.53, para. 13)

Amendment 2

Section 2.1.4

2.1.4 Amend the first sentence to read: “The decision logic and guidance in the *UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria* apply.”.

(References: ST/SG/AC.10/C.3/2015/27, para. 10 and informal document INF.53, para. 13)

Amendment 3

Paragraph 2.1.4.1

Delete the last sentence.

Add a second paragraph to read:

“The current decision logic for the classification of explosive substances, mixtures and articles as prescribed above are located in sections 10.3 and 10.4 of the *UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria*. They are not provided in this document to ensure the most current decision logic is applied.”.

Delete Figures 2.1.1, 2.1.2 and 2.1.3.

(References: ST/SG/AC.10/C.3/2015/27, para. 11 and informal document INF.53, para. 13)

Annex II

Draft amendments to the nineteenth revised edition of the Recommendations on the Transport of Dangerous Goods, Model Regulations (ST/SG/AC.10/1/Rev.19)

Chapter 3.3

Special provision 310: In the first paragraph, replace “cells and batteries” by “cells or batteries”, twice.

(Reference document: ST/SG/AC.10/C.3/2015/28)

Chapter 4.1

4.1.4.1, packing instruction P910: In the introductory sentence, replace “cells and batteries” by “cells or batteries”, twice.

(Reference document: ST/SG/AC.10/C.3/2015/28)

Chapter 6.1

6.1 In the heading of the chapter, delete “(OTHER THAN FOR DIVISION 6.2 SUBSTANCES)”.

6.1.1.1 Add a new subparagraph (e) to read:

“(e) Packagings for Division 6.2 infectious substances of Category A.”.

(Reference document: informal document INF.51)

Chapter 6.2

6.2.2.3 In the first table, insert the following row at the end:

ISO 14246:2014	Gas cylinders – Cylinder valves – Manufacturing tests and examination	Until further notice
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(Reference document: ST/SG/AC.10/C.3/2015/9)

6.2.2.4 Amend the end of the introductory sentence to read: “...testing of UN cylinders and their closures:”.

Move the last row of the table into a new table, after the existing one, with the same headings and a new introductory sentence to read: “The following standard applies to the periodic inspection and testing of UN metal hydride storage systems:”.

(Reference documents: ST/SG/AC.10/C.3/2015/9 and informal document INF.54)

6.2.2.4 At the end of the first table, insert the following row:

ISO 22434:2006	Transportable gas cylinders – Inspection and maintenance of cylinder valves <i>NOTE: These requirements may be met at times other than at the periodic inspection and test of UN cylinders</i>	Until further notice
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(Reference documents: ST/SG/AC.10/C.3/2015/9 and informal document INF.54)

6.2.2.7.4 Under subparagraph (m), insert a new Note to read as follows:

“NOTE: *Information on marks that may be used for identifying threads for cylinders is given in ISO/TR 11364, Gas cylinders – Compilation of national and international valve stem/gas cylinder neck threads and their identification and marking system.”*

(Reference documents: ST/SG/AC.10/C.3/2015/9 and informal document INF.54)

Annex III

Corrections to the nineteenth revised edition of the Recommendations on the Transport of Dangerous Goods, Model Regulations

Chapter 1.5, 1.5.1.1, third sentence

For the existing text, *substitute*

Explanatory material can be found in “Advisory Material for the IAEA Regulations for the Safe Transport of Radioactive Material (2012 Edition)”, Safety Standard Series No. SSG-26, IAEA, Vienna (2014).

Chapter 2.9, 2.9.2.2

For 3530 MACHINERY, INTERNAL COMBUSTION or *read* 3530 MACHINERY, INTERNAL COMBUSTION

(Reference document: informal document INF.49 paragraph 3.7)

Chapter 3.3, special provision 29

Not applicable to the English text

Chapter 3.3, special provision 172 (b)

For “transport units” *read* “cargo transport units”

Chapter 3.3, special provision 295

Not applicable to the English text

Chapter 3.3, special provision 339

Not applicable to the English text

Chapter 3.3, special provision 363 (a) and (b) to (g)

Not applicable to the English text

Chapter 3.4, heading of 3.4.7

For “Marking for” *read* “Marking of”

Chapter 3.4, heading of 3.4.8

For “Marking for” *read* “Marking of”

Chapter 3.5, heading of 3.5.5

For “in any freight vehicle, railway freight wagon or multimodal freight container” *read* “in any cargo transport unit”

Chapter 3.5, 3.5.5

For “in any freight vehicle, railway freight wagon or multimodal freight container” *read*
“in any cargo transport unit”

Chapter 6.1, 6.1.3.1 (d)

Not applicable to the English text

Chapter 6.1, 6.1.4.1.1

For or electrolytic chromium/chromium-oxide coated steel *read* or electrolytic
chromium/chromium oxide-coated steel
