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Joint Meeting of Experts on the Regulations annexed to the European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (ADN) (ADN Safety Committee)

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Item 5 (b) of the provisional agenda

**Proposals for amendments to the Regulations annexed to ADN:
other proposals**

Implementation of the modified concept for explosion protection on inland waterway vessels - interpretation issues

Transmitted the Government of Germany*,**

I. Introduction

Reference document: ECE/ADN/45

1. In consultation with the former chair of the informal working group on explosion protection on inland tank vessels, the German delegation would like to propose to the Safety Committee that the interpretation of some provisions regarding explosion protection adopted for ADN 2019 be discussed because the wording of the current provisions could be misunderstood.

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** In accordance with the programme of work of the Inland Transport Committee for 2018–2019, (ECE/TRANS/2018/21/Add.1 (9.3)).

II. Discussion

A. Definitions in 1.2.1

Related definitions: “Installations and equipment” and “Limited explosion risk electrical apparatus”

1. “Installations and equipment”

2. Most of the new provisions on explosion protection contain the term “installations and equipment”. While a new definition of “equipment” has been added to ADN 2019, there is no such definition for the term “installations”.

3. The German delegation would like to propose that the term “installations” be defined as follows: “Installations consist of connected items of equipment.”. This is in line with the technical codes for electrical engineering and the prevention of occupational accidents which are customarily used in Germany.

Proposed amendment

1.2.1 Insert a new definition to read as follows:

“Installation (electrical or non-electrical) means connected items of equipment (see Equipment).”

2. “Limited explosion risk electrical apparatus”

4. The definition of “Limited explosion risk electrical apparatus” has been changed. This term was used up to ADN 2017 in the following paragraphs: 9.1.0.52, 9.3.x.52.

5. For ADN 2019, in these paragraphs “electrical apparatus” has been replaced by “Electrical installations and equipment”.

6. The German delegation would like to propose that the definition of “Limited explosion risk electrical apparatus” be interpreted as a definition of “Electrical installations and equipment of the limited explosion risk type”. For ADN 2021, a corresponding amendment should be made.

Proposed amendment

1.2.1 In the definition for “*Limited explosion risk electrical apparatus*”, replace “electrical apparatus” by “electrical installations and equipment”.

B. Transitional provisions for 1.2.1 in 1.6.7.2.2.2

Related transitional provisions: “Sampling opening” and “High velocity vent valve”

7. In the definitions, reference is made exclusively to standard “ISO 16852:2016”. This is why the reference to “or EN ISO 16852:2016” in the respective transitional provision is incorrect.

Proposed amendments

1.6.7.2.2.2 In the transitional provision for "1.2.1 Sampling opening, Deflagration safety", delete "or EN ISO 16852:2016".

1.6.7.2.2.2 In the transitional provision for "1.2.1 High velocity vent valve ", delete "or EN ISO 16852:2016".

C. Transitional provision for 9.3.1.53.1, 9.3.2.53.1, 9.3.3.53.1 in 1.6.7.2.2.2

8. There are two transitional provisions for paragraphs 9.3.1.53.1, 9.3.2.53.1, 9.3.3.53.1. The column "Subject" reads as follows:

- First row: "Type and location of electrical installations and equipment intended to be used in explosion hazardous areas Zone 0, Zone 1"
- Second row: "Type and location of electrical installations and equipment intended to be used in explosion hazardous areas; Zone 2"

9. It cannot be determined to which of the sentences of the identical paragraphs 9.3.1.53.1, 9.3.2.53.1, 9.3.3.53.1 these transitional provisions refer.

10. In 9.3.x.53.1, no "location" is mentioned, nor is there any clear statement regarding the "type" of installations and equipment thereof.

11. This new transitional provision contains the following provision in column 3: "*shall be checked and approved by the competent authority with respect to the safety of operation in an explosive atmosphere*". The German delegation believes that this provision should be interpreted as follows:

"The competent authority is to only determine whether the explicitly stated fixed installations existing in a particular zone have actually been checked and approved for use in this zone – in zone 0 (ADN 2017: comparable to zone 0), installations which are approved for zone 0 in accordance with ATEX or similar; in zone 1, installations which are approved for zone 1 or zone 0 in accordance with ATEX or similar, etc. This could be carried out by the authority issuing the certificate of approval.

This check and determination is necessary once directly after 1 January/1 July 2019, independent of the renewal of the certificate of approval (which might e.g. not be due until 25 August 2019)."

12. Second paragraph in column 3: The German delegation believes that "*For the selection of electrical equipment, the explosion groups and temperature classes assigned to the substances carried in the list of substances shall be taken into consideration (see columns (15) and (16) of Table C of Chapter 3.2).*" should be interpreted as follows:

"The term "electrical equipment" is continued to be used in here in the way it has been used in the version of the ADN applicable until 31 December 2017. This is a reflection of the provisions which have been valid up until that date."

13. The same applies to (a) and (b) of the following paragraph: "*on board vessels in service whose keels were laid after 1 January 1977*".

D. Transitional provision for 9.3.3.52.1 (former 9.3.3.52.3 (a) and (b)) in 1.6.7.2.2.2

14. The current text reads: "Electrical installations in operation during a stay in the immediate vicinity of or within an onshore assigned zone"

15. In 9.3.3.52.1 (c), the term “electrical installations and equipment” is used. This is why the transitional provision must also refer to “electrical installations and equipment”. For ADN 2021, a corresponding amendment should be made, as follows:

Proposed amendment

1.6.7.2.2.2 In the transitional provision for 9.3.3.52.1, amend the term “electrical installations” to read “electrical installations and equipment”.

E. Transitional provision for 9.3.3.52.2 in 1.6.7.2.2.2: “Electrical installations/echo sounding devices”

16. The term “electrical installations” is not used in paragraph 9.3.3.52.2. In the heading of 9.3.3.52, it has been amended to read “installations and equipment”. This is why the transitional provision can only refer to “echo sounding devices” as “electrical installations and equipment”. For ADN 2021, a corresponding amendment should be made, as follows:

Proposed amendment

1.6.7.2.2.2 In the transitional provision for 9.3.3.52.2, replace “Electrical installations/echo sounding devices” by “Electrical installations and equipment/echo sounding devices”.

F. Transitional provision for the last sentence of 9.3.x.52.3 in 1.6.7.2.2.2

17. The current text reads: “Disconnection of such equipment from a centralized location.”.

18. In paragraphs 9.3.x.52.3 of ADN, the term “installations” has been replaced by “installations and equipment”. This is why the transitional provision shall also refer to “installations and equipment”. For ADN 2021, a corresponding amendment should be made.

Proposed amendment

1.6.7.2.2.2 In the transitional provision for 9.3.x.52.3, second column, replace “equipment” by “electrical installations and equipment”.

G. Transitional provision concerning the modification of tank vessels in 1.6.7.5

19. The current text reads:

“The modification of the cargo area of a vessel in order to achieve a Type N double-hull vessel is admissible until 31 December 2018 under the following conditions:

...

The vessel parts outside of the cargo area shall comply with the provisions of ADN. Moreover, the following transitional provisions under 1.6.7.2.2 may be applied: 1.2.1, 9.3.3.0.3 (d), 9.3.3.51.3, 9.3.3.52.4 last sentence.

...

Modified vessels may continue to be operated beyond 31 December 2018. The time limits stipulated in the applied transitional provisions under 1.6.7.2.2 shall be observed.”

20. Several amendments to the applicable transitional provisions will enter into force on 1 January 2019.

- (a) Regarding 1.2.1, the descriptions of the transitional provision or the requirements to be complied with during the transition phase have been amended. New transitional provisions have been added.
- (b) The transitional provision for 9.3.3.0.3 (d) remains unchanged.
- (c) Just like the paragraph itself, the transitional provision for 9.3.3.51.3, the former “Temperature class and explosion group”, has been deleted.
- (d) The transitional provision for the last sentence of 9.3.3.52.4 “Disconnection of non-electrical installations and equipment marked in red” has been moved to the transitional provision for the last sentence of 9.3.3.52.3.
- (e) The former content of item No. 12 of the certificate of approval or temporary certificate of approval (8.6.1.3, 8.6.1.4 of ADN) can now be found under No. 13.

21. This is why it cannot be unequivocally determined which transitional provisions can be applied to Type N modified tank vessels: the provisions of ADN 2017 or ADN 2019.

22. If the transitional provision of ADN 2019 is the one meant here, a transitional provision for 9.3.3.51.3 would be missing. In ADN 2019, “Temperature class and explosion group” are regulated in 9.3.3.53.1.

23. In ADN 2019, the cited transitional provision for 9.3.3.52.4 refers to “Visual and audible alarm”, the former 9.3.3.51.2 of ADN 2017. The former content can now be found in 9.3.3.52.3 of ADN, and there are additional provisions on this in 7.2.3.51.4.

Proposed amendment

1.6.7.5 Amend to read as follows (new text underlined, deleted text ~~strike through~~):

"1.6.7.5 Transitional provisions concerning the modification of tank vessels

1.6.7.5.1 For vessels for which tThe modification of the cargo area of a vessel in order to achieve a Type N double-hull vessel iswas admissible until 31 December 2018, the apply following conditions apply:

- (a) The modified or new cargo area shall comply with the provisions of ~~ADN~~ this regulation. Transitional provisions under 1.6.7.2.2 may not be applied for the cargo area.
- (b) The ~~vessel parts~~ areas of the vessel outside of the cargo area ~~too~~ shall comply with the provisions of ADN. ~~Moreover,~~ However, the following transitional provisions under 1.6.7.2.2 in the version applicable until 31 December 2018 may be applied: 1.2.1, 9.3.3.0.3 (d), 9.3.3.51.3, 9.3.3.52.4 last sentence.
- [(b) The vessel parts outside of the cargo area ~~too~~ shall comply with the provisions of ADN. However, transitional provisions under 1.6.7.2.2 for 1.2.1, 9.3.3.0.3 (d), 9.3.3.51.3, 9.3.3.52.4 last sentence, applicable until 31 December 2018, may be applied.]
- (c) If goods which require explosion protection are entered in the list according to 1.16.1.2.5, accommodation and wheelhouses shall be equipped with a fire alarm system according to 9.3.3.40.2.3.

- (d) The application of this sub-section shall be entered in the certificate of approval under No. ~~42~~ 13(Additional observations).

1.6.7.5.2 Modified vessels may continue to be operated beyond 31 December 2018. The time limits stipulated in the applied transitional provisions under 1.6.7.2.2 in the version applicable until 31 December 2018 shall be observed.

[1.6.7.5.2 Modified vessels may continue to be operated beyond 31 December 2018. The time limits stipulated in the transitional provisions under 1.6.7.2.2 [for 1.2.1, 9.3.3.0.3 (d), 9.3.3.51.3, 9.3.3.52.4 last sentence.] applicable until 31 December 2018, shall be observed.]

H. Prohibition of mixed loading in 7.1.4.4.4

24. The current text reads as follows:

“The electrical equipment fitted to the outside of a closed container may be connected with removable electric cables in accordance with the provisions of 9.1.0.56 and be put into operation provided that:”

25. In the German language version, the German term “Anlagen” (installations) in the introductory sentence has been amended to read “Anlagen und Geräte” (installations and equipment). However, the term “Anlagen” is still used in the second sentence and under (a) and (b). It remains unclear why “Geräte” (equipment) is not added.

Proposed amendment

[The proposed amendment to replace in 7.1.4.4.4 "equipment" by "installations and equipment" does not apply to the English or French texts].

26. When provision 7.1.4.4.4 of ADN was developed, those drafting the provisions particularly thought of refrigerated containers or reefers which are fitted with electrically operated cooling appliances on the outside.

27. Current discussions at the ECOSOC Sub-Committee of Experts on the Transport of Dangerous Goods (TDG Sub-Committee) revolve around the fact that containers and other packages are increasingly equipped with *cargo monitoring devices*, *data loggers* or *electronic shipping labels* which are powered by lithium metal or lithium ion batteries during carriage. These too may be a source of ignition. (see <http://www.rmmagazine.com/2018/05/21/developing-new-safety-rules-for-cargo-tracking-devices/>).

28. The ADN Safety Committee could discuss whether these *cargo monitoring devices*, *data loggers* or *electronic shipping labels* are covered by the term “installations and equipment”, whether *cargo-monitoring devices*, *data loggers* and *electronic shipping labels* of the certified safe type exist, or whether there is a need for a new stowage provision in this case for reasons of explosion protection.

I. Measures during loading, carriage, unloading and the handling of cargo in 7.2.4.16.4

29. Current text reads: “If the vessel is fitted with a transverse bulkhead according to 9.3.1.25.3, 9.3.2.25.3 or 9.3.3.25.3, the doors in this bulkhead shall be closed during loading and unloading.”

30. Paragraph 7.2.4.16.4 refers to 9.3.x.25.3 which, in the version applicable until 31 December 2018, itself referred to “a transverse bulkhead complying with 9.3.x.10.2”.

31. Paragraph 9.3.x.25.3 was deleted. Paragraph 9.3.x.10.2 now contains a new text which has nothing to do with a “transverse bulkhead”. Transitional provision 1.6.7.2.2.2 to 9.3.x.10.2 was renumbered into transitional provision to 9.3.x.10.4. This paragraph too does not deal with transverse bulkheads within the meaning of 9.3.x.10.2 of ADN 2017.

32. The terms “transverse bulkhead” or “transverse wall” are not referred to anywhere else within the ADN in the version applicable as of 1 January 2019.

Proposed amendment

7.2.4.16.4 Delete and insert “(Deleted)”.

J. Documents in 8.1.2.1 (e)

33. Current text reads: “The inspection certificate of the insulation resistance of the electrical installations prescribed in 8.1.7.1”

34. In 8.1.7.1, the term combination “installations and equipment” is used instead of the single term “installations”.

Proposed amendment

8.1.2.1 (e) Replace “installations” by “installations and equipment”.

K. Documents in 8.1.2.2 (e) – (h) and 8.1.2.3 (r) – (v)

35. Current text reads:

“The documents listed under (e) – (h) shall bear the stamp of the competent authority issuing the certificate of approval.”

“The documents listed under (r) – (v) shall bear the stamp of the competent authority issuing the certificate of approval.”

36. It remains unclear whether the documents need to receive a new stamp upon each renewal of the certificate of approval even if no changes were made to the documents. The Safety Committee is invited to clarify the requirement.

L. Model certificate of approval/Provisional certificate of approval for “dry-cargo vessels”, 8.6.1.1 and 8.6.1.2

37. Current text reads: “No. 4: Electrical and non-electrical installations and equipment for use in protected areas:”

38. Item No. 4 will be added to the model of a certificate of approval and be applicable as from 1 January 2019. As in the case of certificates of approval for tank vessels (see section XI. below), the German delegation would like to propose that this provision be interpreted as applying only to stationary, permanently installed installations and equipment (see definition of “equipment” and proposed amendment under paragraph 4 of this document).

Proposed amendment

8.6.1.1 and 8.6.1.2 In the model certificate of approval, amend item No.4 to read as follows: “*Stationary electrical and non-electrical installations and equipment for use in protected areas*”.

M. Model certificate of approval/Provisional certificate of approval for “tank vessels” in 8.6.1.3 and 8.6.1.4

39. The current text reads: "No. 9 Electrical and non-electrical installations and equipment for use in explosion hazardous areas:"

40. In the version applicable until 31 December 2018, No. 9 of the model of a certificate of approval reads as follows: “*9. Electrical equipment*”. This provision referred to rule for construction 9.3.x.51 “Electrical installations”. In conjunction with 9.x.1.52, it was apparent that, in the model of a certificate of approval, only the vessel’s stationary, permanently installed installations and equipment were made reference to.

41. The German delegation would like to propose that, as of 1 January 2019 too, any entry under No. 9 of the certificate of approval shall only refer to stationary, permanently installed installations and equipment (see definition of “equipment” and proposed amendment No. 3 in this document).

42. In the models for a certificate of approval for tank vessels, a new No. 10 “*Autonomous protection systems*” was included and subsequent entries were renumbered accordingly. This necessitates a consequential amendment in chapter 1.16.

Proposed amendments

8.6.1.3 and 8.6.1.4 In the model certificate of approval, amend item No.9 to read as follows: “*Stationary electrical installations and equipment*”.

1.16.1.3.2 In last sentence, replace “Number 12” with “Number 13”.

N. Checklist (8.6.3)

43. Related texts: "14. Check on the most important operational requirements:

- Is all electrical equipment marked red switched off?"

Explanation of question 11 on the Communication between vessel and shore

44. In the opinion of the German delegation, this question of the checklist refers to provision 9.3.x.52.3. The expression used in this provision is “electrical installations and equipment”. This is why also in question 14 of the checklist the term “electrical equipment” should be replaced with “electrical installations and equipment”.

45. The explosion protection requirements are made subject to whether substances are carried, loaded or unloaded that require anti-explosion protection in accordance with column (17) of Table C. This differentiation should also be taken into account in the explanation of question 11 of the checklist, on when only telephone and radio equipment of an explosion protected type may be used.

Proposed amendments

8.6.3 Checklist, question 14, sixth indent, replace “equipment” by “installations and equipment”.

8.6.3 Checklist, Explanation of question 11, replace the second sentence by the following:

“If there is a need for explosion protection in accordance with column (17) of Table C in 3.2.3.2, telephone and radio equipment may be used only if of an explosion protected type. This equipment shall be located within reach of the supervisor.”.

O. 9.3.2.42.4 and 9.3.3.42.4 (first and third sentences)

46. The current text reads as follows:

“Where the cargo-heating system is used during loading, unloading and degassing with a concentration given off by the cargo of 10 % of the LEL or above, the service space which contains this system shall fully comply with the requirements of 9.3.2.52.3. ...

The requirements of 9.3.2.52.3 are not applicable to the unloading of substances having a flash point of 60 °C or more when the temperature of the product is at least 15 K lower at the flash point.”

47. Paragraph 9.3.x.42.4 refers twice to 9.3.x.52.3.

48. Up until 31 December 2018, this paragraph contained provisions on “Electrical installations and equipment of the limited explosion risk type”. As from 1 January 2019, these provisions were moved to 9.3.x.51.1.

Proposed amendment

9.3.2.42.4 Replace “9.3.2.52.3” by “9.3.2.52.1”.

9.3.3.42.4 Replace “9.3.3.52.3” by “9.3.3.52.1”.

P. Paragraph 9.3.2.8.3

49. The current text reads as follows: “The condition of the gas detection system referred to in 9.3.2.52.3 shall be checked by a recognised classification society whenever the certificate of approval has to be renewed and during the third year of validity of the certificate of approval. A certificate signed by the recognised classification society shall be kept on board.”

50. Paragraph 9.3.2.8.3 refers to 9.3.2.52.3.

51. As from 1 January 2019, paragraph 9.3.x.52.3 does not refer to gas detection systems anymore. The provisions on electrical installations and equipment were moved to 9.3.x.51.1.

52. As from 1 January 2019, the provisions on the check of gas detection systems by a recognised classification society can be found in sentences 4 to 7 of 8.1.6.3.

53. The regulation in 9.3.2.8.3 has therefore become superfluous.

Proposed amendment

9.3.2.8.3 Delete and insert “(Deleted)”.

Q. Sub-paragraph 9.3.2.50.1 (c)

54. The current text reads:

“In addition to the documents required in accordance with the Regulations referred to in 1.1.4.6, the following documents shall be on board:

- (c) a list of or general plan indicating the electrical equipment located outside the cargo area which may be operated during loading, unloading or gas-freeing. All other electrical equipment shall be marked in red. See 9.3.2.52.3 and 9.3.2.52.4.”.

55. Paragraph 9.3.2.50.1 (c) refers to 9.3.2.52.3 and 9.3.2.52.4.

56. As of 1 January 2019, 9.3.2.52.3 will contain only provisions on the red marking and the disconnection of equipment. The provisions on electrical installations and equipment were moved to 9.3.x.51.1.

57. Up until 31 December 2018, paragraph 9.3.2.52.4 contained provisions on the red marking and the disconnection of electrical installations. These provisions were moved to 9.3.x.52.3.

Proposed amendment

9.3.2.50.1 (c) Replace “9.3.2.52.3” by “9.3.2.52.1” and “9.3.2.52.4” by “9.3.2.52.3”.

R. Note with regard to ECE/ADN/45, English version:

58. In section 1.2.1 the German term “Autonome Schutzsysteme”, “Systèmes de protection autonomes” in the French version, is translated into English as “Self-contained protection systems”.

59. Until 8.1.7.2, this term is used nine times. From 8.1.7.3 onwards, the term “autonomous protection systems” is used to describe the same concept five times (including in the model of a certificate of approval).

60. The German delegation would like to propose to consistently use the term given in 1.2.1, “Self-contained protection system”, in the English version. Then there would be no doubts as to what is meant by the so-called “autonomous protection systems” in the model of a certificate of approval.

III. Implementation

61. These are exclusively editorial amendments to the text of the regulations which do not represent any technical or organisational changes to vessels or to the process of transport operations.

IV. Safety

62. If regulations are formulated in a clear and understandable manner thus facilitating compliance with them, this improves safety during carriage.