
Economic Commission for Europe**Inland Transport Committee**

20 July 2012

Working Party on the Transport of Dangerous Goods**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)****Twenty-first session**

Geneva, 27–31 August 2012

Item 5 (b) of the provisional agenda

Proposals for amendments to the Regulations annexed to ADN:**Amendments for entry into force on 1 January 2015**

Report on the fifth meeting of the informal working group on substances on 5 and 6 June 2012 in Strasbourg**Transmitted by the Central Commission for the Navigation of the Rhine (CCNR)¹****Introduction**

1. The fifth meeting of the informal working group on substances took place on 05 and 06 at June 2012 in the Palace of the Rhine in Strasbourg. The following persons attended the meeting:

Mr. Ackermann (CEFIC)
Ms. Adebahr-Lindner (Germany)
Mr. van Bergen (Bureau Veritas)
Dr. Brandes (Germany)
Mr. Dosdahl (Germanischer Lloyd)
Mr. Hoving (Netherlands)
Dr. Kraeh (CEFIC)
Mr. Krischok (Germany, Chairman)
Mr. van Lancker (Belgium)
Mr. de Maat (Netherlands)
Mr. Saha (CCNR)
Mr. Vinke (Lloyd's Register)
Mr. Weiner (Germany).

¹ Distributed in German by the Central Commission for the Navigation of the Rhine under the symbol CCNR/ZKR/ADN/WP.15/AC.2/21/INF.11.

Results

2. In accordance with the mandate given by the Safety Committee (ECE/TRANS/WP.15/AC.2/42, paragraphs 25, 26, 34, 35, 46 and 47), the group dealt with the following issues:

A. Determination of the conditions of carriage of isomers and isomeric mixtures of UN 1265 Pentanes, UN 1208 Hexanes, UN 1206 Heptanes und UN 1262 Octanes

3. The members of the informal working group checked the data for various isomers of UN 1265 Pentanes, UN 1208 Hexanes, UN 1206 Heptanes and UN 1262 Octanes.

4. In the case of the heptanes and octanes, the conditions of carriage that are currently listed in Table C for n-isomers also correspond to those of the other isomers, so that it is sufficient if the reference to the n-isomer is deleted in name and description.

5. In the case of the hexanes, the reference to the n-isomer can also be omitted. However, the amendments for the ADN 2013 should be corrected such that the carriage in vessels of type N with an opening pressure of the high-velocity vent valve of 50 kPa without water spraying and with an opening pressure of the high-velocity vent valve of 10 kPa with water spraying is possible.

6. In the case of the pentanes, it is proposed to retain the existing entries for methylbutane and n-pentane. In the case of the other isomers and isomeric mixtures, two new lines for the possible packing groups I and II should be inserted. These new lines should refer to the flowchart to take into account the various vapour pressures.

7. The proposed amendments are included in Amendment proposal 1 in the annex.

B. Discussion on problems and questions concerning the application of the flowchart by the carriers and classification societies

8. In preparation for the session, an extract from the guideline of the German Federal Institute of Physics and Technology (PTB) and an extract from Table C that contains all combinations for dangers and properties were provided for the example UN 1224 Ketones, liquid, n.o.s., PG III. These documents were analysed and discussed. The informal working group made the following conclusions:

(i) The data needed for laying down the conditions of carriage are the same for the implementation of the flowchart, for the application of the guideline and the selection of the line in the extended Table C.

(ii) If these data are used correctly, the different approaches will lead to the same solution.

(iii) If the creation of the vessel list of substances is carried out mechanically, i.e. without any chemical background knowledge, unused lines may be generated, but no incorrect entries.

9. In the context of this statement, it was agreed that the representatives of the three classification societies will meet and check how the specifications for the vessel lists of substances can be depicted best using three virtual vessels (C 2 2, N 3 2 und N 3 3). The Safety Committee is to be informed about the results of this meeting.

C. Proposal for consequential amendments in Table C resulting from the amendment of the flowchart

10. In the twentieth session of the Security Committee, a proposal for the carriage of heating oil was discussed. The discussion focused on enabling the carriage of heating oil, heavy, in tank vessels of type N double-hulled ships. The proposed solution included that apart from properties pollutant to the aquatic environment, also the vapour pressure should be considered. For the absolute vapour pressure of 50 °C (pD_{50}), a limit of 1 kPa was determined. Only group N1 substances with properties pollutant to the aquatic environment and with $pD_{50} \geq 1$ kPa have to be transported in a type C vessel.

11. Applying these amended criteria leads to amendments for the following entries in Table C:

- UN 1764 DICHLOROACETIC ACID ($pD_{50}=0,2$ kPa)
- UN 2430 ALKYLPHENOLS, SOLID, N.O.S. (NONYLPHENOL- ISOMERIC MIXTURE, MOLTEN ($pD_{50}=0,034$ kPa)
- UN 2709 BUTYLBENZENES ($pD_{50}=0,712$ kPa)
- UN 2850 PROPYLENE TETRAMER or TETRAPROPYLE ($pD_{50}=0,62$ kPa).

12. As a result, is proposed to replace the existing entries for UN numbers 1764, 2430 (twice) and 2850. Since in the case of the 2709 Butylbenzenes only the n-isomer has a vapour pressure of less than 1 kPa, a new entry for n-butylbenzenes should be added to Table C. A new remark should be added to the existing entry in column 20, which specifies that there is a separate entry for n-butylbenzenes.

13. The proposed amendments are included in Amendment proposal 2 in the annex.

D. Proposal for the clarification of the density to be used according to GESAMP in the context of ADN

14. In the past, there were a number of problems concerning the application of provisions for the classification of substances according the criteria for floaters and sinkers.

15. A part of the problems results from the fact that in the provisions annexed to the ADN, it is generally referred to GESAMP for the classification as floater or sinker. The information is missing that a density of 1000 kg/m³ (for inland waterways), and not of 1025 kg/m³ (sea water) as prescribed in GESAMP for the maritime carriage, is used as a decision criterion.

16. Moreover, it is considered appropriate to specify in the provision that for an evaluation according to the GESAMP model, it is necessary to state the relative density, the vapour pressure and the water solubility for a temperature of 20 °C.

17. The proposed amendments are included in Amendment proposal 3 in the annex.

E. Proposal for the specification of the name and description in Table C for the entry UN 2078 TOLUENE DIISOCAYNATE

18. The participants of the informal working group are of the opinion the expression in the brackets "(and isomeric mixtures)" can be deleted in both entries for UN 2078 TOLUENE DIISOCYANATE (and isomeric mixtures) and (2,4-TOLUENE DIISOCYANATE).

19. The group can also agree with deleting the second expression in brackets "(2,4-TOLUENE DIISOCYANATE)". Thus, it would be possible to transport also other isomers and isomeric mixtures under this entry. On part of CEFIC, after the release of the data it is intended to submit an official proposal for this amendment to the Safety Committee.

F. Proposal for correction of the amendment for the new entries concerning UN 1010, UN 1011 and UN 1969 in Table C

20. In the nineteenth session of the Safety Committee, it was decided that Table C should be supplemented by three new entries with the UN numbers 1010 BUTADIENES, STABILIZED or BUTADIENES AND HYDROCARBON MIXTURE, STABILIZED having a vapour pressure at 70° C not exceeding 1.1 MPa (11 bar) and a density at 50° C not lower than 0.525 kg/l, (with 0.1% or more 1.3-butadiene), 1011 BUTANE (with 0.1% or more 1.3-butadiene) and 1969 ISOBUTANE (with 0.1% or more 1.3-butadiene) (see ECE/TRANS/WP.15/AC.2/40/Add.1).

21. In the twentieth session of the Safety Committee, these three new entries will be editorially corrected according a proposal of the EBU (WP15-AC2-20-inf16e). "13" in Column (8) was changed into "1" and "3" was entered in Column (9) (see ECE/TRANS/WP.15/AC.2/42 Point 5).

22. The "3" in Column (9) means that there must be a water spray system. However, according to the participants of the informal working group this is not required for the carriage of these substances in type G vessels. Therefore, it is proposed to delete the "3" in Column (9) for these entries.

23. The proposed amendments are included in Amendment proposal 4 in the annex.

Furthermore, the informal group, upon the proposal of single participants and representatives of the Safety Committee, dealt with the following issues:

G1. Errors in the flowchart in Scheme C in the English, French and Russian version

24. It was found out that in the English, French and Russian version of ADN in Scheme C of the flowchart in the second column (Classes 3 and 9), the text in the second line was replaced by the text of the third line. The working group advises the Safety Committee to adjust the text of the English, French and Russian Version according to the German text.

G2. Specification of the wording concerning corrosive substances in the flowchart in Scheme C

25. According to some participants of the informal working group, there can be misinterpretations in the third column ("Corrosive substances") in Scheme C of the flowchart since the text following the comma "transported while heated" refers to the whole phrase "flammable substances or acids" and not only to "acids". To avoid this misinterpretation, the group proposes to change the layout and to present the text in three lines:

1st line: "flammable substances"
2nd line: "or"
3rd line: "acids, transported while heated".

G3. Information on the vapour pressure in some entries of UN 1286

26. It was determined that there were differences concerning the information on the vapour pressure in the entries of UN 1268 PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S. between the different language versions. After a first examination, the majority of the participants concluded that German version is correct. Some other participants, however, reserved their right to perform a second examination.

G4. Use of singular or plural in the name of UN 3082

27. It was discussed whether to use the singular form "heating oil, heavy" or the plural form "heating oils, heavy" for UN 3082. According to the working group, none of the two options leads to problems as regards the content so that there is no need to replace the plural by the singular form.

G5. Scope of the amendments from CCNR-ZKR/ADN/WP.15/AC.2/2011/36 for UN 1010

28. The group clarifies that the amendments adopted based on the proposal from the document CCNR-ZKR/ADN/WP.15/AC.2/2011/36 only refer to the 1.3-isomer of butadienes, since the 1.2-isomer has no CMR properties according to ADN.

G6. Differences in the name for UN 9003 in the language versions

29. There are differences in the different language versions because in some cases the limits of the flashpoint are represented verbally ("SUBSTANCES HAVING A FLASH-POINT ABOVE 60 °C" and "NOT MORE THAN 100 °C") and in other cases by the respective symbols (" $< 60\text{ °C}$ " and " $\leq 100\text{ °C}$ "). The working group proposes to use the shorter form using the symbols.

G7. Language versions for UN 3256 and UN 3257

30. After a detailed examination, the group concluded that there is no need for action.

G8. Heating oil, heavy – transitional periods for the heating of the control devices and problems with the gas compensation while loading and unloading

31. According to the working group, a transitional period can be provided for the requirement for heating the control devices during the carriage of heating oil, heavy. The industry should provide information on the time needed for adapting the vessels.

32. Concerning the problem of the gas compensation during the loading and unloading of heating oil, heavy, the participants of the informal working group concluded the following statements:

- (i) Substances with CMR properties must be transported in close-type vessels.
- (ii) If, according to the requirements, a carriage in a close-type vessel is required, the loading and unloading should only be carried out with gas compensation.
- (iii) In the special case of the carriage of heating oil, heavy, the technical conditions on the landside are currently missing in order to implement the requirement for the gas compensation with the entry into force of ADN 2013, including a six-month transitional period.
- (iv) Reaching a multilateral agreement is seen as a possibility to enable the carriage of heating oil, heavy, from 2013 on.

33. Moreover, the group concluded that a possibility for a future development of the requirement could lie in separately considering the CMR properties of the liquid and the gaseous phase for the substances transported in tank vessels and to provide appropriate requirements.

G9. Problems with Remark 14 in Table C

34. In the past, there were some difficulties concerning Remark 14 in Table C. Remark 14 says that substances with a self-ignition temperature ≥ 200 °C or a flash-point < 23 °C and an explosion range > 15 percentage points and mixtures containing halogenated hydrocarbons or more than 10% benzene and substances and mixtures carried in a stabilized state must not be carried under these conditions (Note: These are the criteria that require carriage in a type C vessel). Remark 14 should safely prevent that substances from N.O.S. entries requiring a type C vessel are carried in a type N vessel.

35. The information from the respective lines of Table C, including the remarks in Column (20), will be adopted by the classification societies when creating the vessel lists of substances. In the case of type C vessels, this sometimes leads to the misinterpretation that these substances cannot be carried under these conditions, i.e. in this type C vessel.

36. The proposed amendments are included in Amendment proposal 5 in the annex.

G10. Master Tables for Tables A, B and C

37. In order to prevent variations in the Tables A, B and C between the different language versions, the secretariats of the UN-ECE and the CCNR proposed to create so-called Master Tables. These Master Tables should include the columns that are identical in all languages only once. The language-specific columns should be placed next to each other. These Master Tables can then be used to derive the tables for the individual language versions.

38. According to the secretariats, the informal working group on substances could be assigned with the maintenance and updating of these Master Tables. The informal working group is willing to take on this task. However, the group thinks that for this approach, a corresponding mandate of the Safety Committee is required.

Annex

Amendment proposal 1

Part 3

Chapter 3.2

3.2.3, Table C

Amend Table C as follows:

UN-Number	Column	Amendment
1206	2	Delete "(n-HEPTANE)".
1208	2	Delete "(n-HEXANE)".
	9	Delete "3".
1262	2	Delete "(n-OCTANE)".

Insert the following new entries in Table C:

(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
UN No. or substance identification No.	Name and description	Class	Classification code	Packing group	Dangers	Type of tank vessel	Cargo tank design	Cargo tank type	Cargo tank equipment	Opening pressure of the high-velocity vent valve in kPa	Maximum degree of filling in %	Relative density at 20 °C	Type of sampling device	Pump room below deck permitted	Temperature class	Explosion group	Anti-explosion protection required	Equipment required	Number of blue cones/lights	Additional requirements/Remarks
1265	PENTANES, liquid	3	F1	I	3+N2	*	*	*	*	*	*	*	*	yes	*	II A	yes	PP, EX, A	1	14; * see flowchart
1265	PENTANES, liquid	3	F1	II	3+N2	*	*	*	*	*	*	*	*	yes	*	II A	yes	PP, EX, A	1	14; * see flowchart
1208	HEXANES	3	F1	II	3+N2	N	2	3	3	10	97	0,65 – 0,70	3	yes	T3	II A	yes	PP, EX, A	1	

Amendment proposal 2

Part 3

Chapter 3.2

3.2.3, Table C

Replace the existing lines in Table C for the UN Nos. 1764, 2430 (twice) and 2850 by the following entries:

(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
UN No. or substance identification No.	Name and description	Class	Classification code	Packing group	Dangers	Type of tank vessel	Cargo tank design	Cargo tank type	Cargo tank equipment	Opening pressure of the high-velocity vent valve in kPa	Maximum degree of filling in %	Relative density at 20 °C	Type of sampling device	Pump room below deck permitted	Temperature class	Explosion group	Anti-explosion protection required	Equipment required	Number of blue cones/lights	Additional requirements/Remarks
1764	DICHLOROACETIC ACID	8	C3	II	8+N1	N	3	3			97	1,56	2	yes	T1	II A	yes	PP, EP, EX, A	0	17
2430	ALKYLPHENOLS, SOLID, N.O.S. (NONYLPHENOL, ISOMERIC MIXTURE, MOLTEN)	8	C4	II	8+N1+F	N	3	1	2		95	0,95	2	yes	T2	II A 7)	yes	PP, EP, EX, A	0	7; 17
2430	ALKYLPHENOLS, SOLID, N.O.S. (NONYLPHENOL, ISOMERIC MIXTURE, MOLTEN)	8	C4	II	8+N1+F	N	3	2	4		95	0,95	2	yes			no	PP, EP	0	7; 17; 20: +125 °C
2850	PROPYLENE TETRAMER or TETRAPROPYLE	3	F1	III	3+N1+F	N	4	3			97	0,76	2	yes			no	PP	0	

Insert the following new entries in Table C:

(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
UN No. or substance identification No.	Name and description	Class	Classification code	Packing group	Dangers	Type of tank vessel	Cargo tank design	Cargo tank type	Cargo tank equipment	Opening pressure of the high-velocity vent valve in kPa	Maximum degree of filling in %	Relative density at 20 °C	Type of sampling device	Pump room below deck permitted	Temperature class	Explosion group	Anti-explosion protection required	Equipment required	Number of blue cones/lights	Additional requirements/Remarks
2709	BUTYLBENZENES (n-Butylbenzene)	3	F1	III	3+N1+F	N	3	3			97	0,87	2	yes	T2	II A	yes	PP, EX, A	0	

Amend Table C as follows:

UN-Number	Column	Amendment
2709	20	Add "xx"

in Explanatory remarks for each column:

Column 20

Add at the end:

"xx n-Butylbenzene is assigned to the entry UN 2790 BUTYLBENZENES (n-Butylbenzen)."

Amendment proposal 3

Part 1

Chapter 1.2

1.2.1 Definitions

Add the following text under letter "G":

“GESAMP: Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection.
IMO publication: “The Revised GESAMP Hazard Evaluation Procedure for Chemical Substances Carried by Ships”, GESAMP Reports and Studies No. 64, IMO, London, 2002.

The relative density, the vapour pressure and the water solubility according to the GESAMP model are to be indicated for 20 °C. According to this regulation, the allocation to substances floating on water surface (floater) and to substances sinking to bottom of water (sinker) should be based on a limit of 1.000 (resulting from the water density in inland waterways of 1000 kg/m³”).

Part 2

Chapter 2.2

2.2.9 Class 9 Miscellaneous dangerous substances and articles

2.2.9.1. Criteria

2.2.9.1.10 Pollutants to the aquatic environment

Add the following text at the end:

“2.2.9.1.10.5 For carriage in tank vessels, substances, solutions and mixtures are considered as substances, solutions and mixtures floating on water surface (floaters) if they meet the following criteria:

Water solubility	< 0.1%
Vapour pressure	< 0.3 kPa
Relative density	< 1.000.

For carriage in tank vessels, substances, solutions and mixtures are considered as substances, solutions and mixtures sinking to bottom of water (sinkers) if they meet the following criteria:

Water solubility	< 0.1%
Relative density	≥ 1.000.

Part 3

Chapter 3.2

3.2.3, Flowchart, 3rd and 5th box

Replace each “(criteria according to GESAMP),^{a)}” by “(criteria according to 2.2.9.1.10.5)”

Delete footnote ^{a)}

Part 3

Chapter 3.2

3.2.4.3 Criteria for assignment of substances

Replace “(criteria according to GESAMP⁶⁾)” by “(criteria according to 2.2.9.1.10.5)”

Delete footnote ⁶⁾

Amendment proposal 4

Part 3

Chapter 3.2

3.2.3, Table C

Amend Table C as follows:

UN-Number	Column	Amendment
BUTADIENES STABILIZED or BUTADIENES AND HYDROCARBON, MIXTURE, STABILIZED, having a vapour pressure at 70 °C not exceeding 1.1 MPa (11 bar) and a density at 50 °C not below 0.525 kg/l (<i>contains 0,1% or more 1,3-Butadiene</i>)	9	Delete “3”.
BUTANE (<i>contains 0,1 % or more 1,3-Butadiene</i>)	9	Delete “3”.
ISOBUTANE (<i>contains 0,1 % or more 1,3-Butadiene</i>)	9	Delete “3”.

Amendment proposal 5

Part 3

Chapter 3.2

3.2.3 Table C: List of dangerous goods accepted for carriage in tank vessels in numerical order

Explanatory remarks for each column

Column 20 Additional Requirements/Remarks

Replace “14. The following substances may not be carried under these conditions:”

by: “14. The following substances may not be carried in a type N vessel:”