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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)

Thirty-first session

Geneva, 28-31 August 2017

Item 4 (b) of the provisional agenda

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

Report on the ninth meeting of the informal working group on substances

Transmitted by the Government of Germany***

Introduction

1. The ninth meeting of the informal working group on substances was held at BAM (Federal Institute for Materials Research and Testing) in Berlin on 19 and 20 April 2017.
2. The meeting was chaired by Mr Krischok (Germany) and the meeting was also attended by representatives of Germany, Netherlands, European Chemical Industry Council (CEFIC), Switzerland, the European Barge Union (EBU), FuelsEurope, Lloyd's Register and the European Skippers' Organisation (ESO).

Results

3. In accordance with the mandate issued by the Safety Committee, the group dealt with the following issues:

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** In accordance with the programme of work of the Inland Transport Committee for 2016–2017 (ECE/TRANS/2016/28/Add.1 (9.3.)).

**A. Special authorization for the carriage of DIACETONE ALCOHOL
(UN No. 1148)**

4. The working group examined informal document INF.19/rev.1 submitted by the Belgian delegation for the twenty-ninth meeting of the ADN Safety Committee to include a new entry for UN 1148 DIACETONE ALCOHOL in Table C. The group agreed to this proposal. Only the relative density in column (12) was corrected to read “0.93” in accordance with the results of a research in the CHEMSAFE and GESTIS databases.

Proposals

5. In Table A, for UN 1148 DIACETONE ALCOHOL, PG III, insert “T” in column (8) Carriage permitted.
6. Add the following entry to Table C:

(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
<i>UN No. or substance identification No.</i>	<i>Name and description</i>	<i>Class</i>	<i>Classification code</i>	<i>Packing group</i>	<i>Dangers</i>	<i>Type of tank vessel</i>	<i>Cargo tank design</i>	<i>Cargo tank type</i>	<i>Cargo tank equipment</i>	<i>Opening pressure of the high-velocity vent valve in kPa</i>	<i>Maximum degree of filling in %</i>	<i>Relative density at 20 °C</i>	<i>Type of sampling device</i>	<i>Pump room below deck permitted</i>	<i>Temperature class</i>	<i>Explosion group</i>	<i>Anti-explosion protection required</i>	<i>Equipment required</i>	<i>Number of cones/blue lights</i>	<i>Additional requirements/Remarks</i>
1148	DIACETONE ALCOHOL	3	F1	III	3	N	3	2			97	0.93	3	yes	T1	II A	yes	PP, EX, A	0	

B. Reference to remark 17 in column (20) of Table C for UN Nos. 3256 and 3257

7. Remark 17 reads as follows: “The melting point of the cargo shall be shown in the transport documents.” and shall be made reference to in column (20) of Table C in accordance with the criteria in 3.2.3.3 and 3.2.4.3 when reference is made in column (20) to remark 6 or 7. This approach, however, is not followed with regard to the entries for UN Nos. 3256 and 3257 in ADN 2017. Similar discrepancies were also found in the entries of UN numbers

1664 NITROTOLUENES, LIQUID (o-NITROTOLUENE),

1764 DICHLOROACETIC ACID,

2218 ACRYLIC ACID, STABILIZED and

2448 SULPHUR, MOLTEN.

8. In the opinion of the working group, for UN 1664, remark 17 is to be deleted due to the melting point of -4 °C.

9. For UN 1764 (melting point 9 °C), remark 17 is to be maintained and remark 6 is to be added.

10. For UN 2218, in particular in connection with remark 4, all the required information and remarks are provided. It is thus recommended to add remark 4 in 3.2.3.3 and 3.2.4.3 in the criteria for assigning remark 17. Besides UN 2218, remark 4 is only listed once for UN 2531 METHACRYLIC ACID, STABILIZED where it is already listed together with remark 17.

11. For the entries for UN Nos. 2448, 3256 and 3257, remark 17 is to be added.

Proposals

12. The working group proposes the following amendments to Table C:

(i) UN 1664: delete “17” in column (20).

(ii) UN 1764: insert “6:+13 °C” in column (20) before “17”.

(iii) UN 2448, UN 3256 (all entries) and UN 3257 (all entries): insert “; 17” after “7” in column (20).

13. Moreover, the working group proposes to add remark 4 in 3.2.3.3 and 3.2.4.3 for remark 17 in column (20) so that the criteria for remark 17 read as follows: “Reference shall be made in column (20) to remark 17 for substances when reference is made to remark 4, 6 or 7.”

C. Examination of the condition of carriage “open/closed cargo tank” for UN Nos. 2935, 2947 and 3256

14. For the purposes of ADN, UN 2935 ETHYL-2-CHLOROPROPIONATE and UN 2947 ISOPROPYL CHLOROACETATE are chlorinated hydrocarbons. Column (5) Dangers of the entry in question for UN 3256 with the name and description ELEVATED TEMPERATURE LIQUID, FLAMMABLE, N.O.S. with flash-point above 60 °C, at or above its flash-point (CREOSOTE OIL) contains the information “N1”. Thus, the requirement that these three substances be transported in a type C vessel with closed cargo tanks is correct.

15. During the discussion of this issue, it was noted that in the entry for UN 3256 ELEVATED TEMPERATURE LIQUID, FLAMMABLE, N.O.S. with flash-point above 60 °C, at or above its flash-point (Low QI Pitch) an open type N tank vessel with flame arrester is required. The reference to CMR properties in column (5) Dangers, however, would require carriage in closed cargo tanks.

D. Assignment of subgroups of explosion group IIB

Substances mentioned by name

16. The assignment of subgroups in the case of substances mentioned by name is, in principle, resolved. Based on the documents prepared by EBU/ESO, the working group examined the assignment of explosion groups/subgroups to a series of entries in Table C (see informal document INF.8). Here, in addition to information from standard IEC 60079-20-1, particularly up-to-date measurement results of the National Metrology Institute of Germany (PTB) were taken into consideration.

17. The representative of the Netherlands emphasized the need to perform examinations and calculations in accordance with standard IEC 60079-20-1. PTB made clear that the calculation formula given in the standard for two-component systems yields suitable results for the assignment of the mixture provided there are reliable measurement results on the maximum experimental safe gaps of the two components. For mixtures of several components, with a view to safety, the lower limits of the explosion groups/subgroups should be used in the calculation.

18. For a series of substances with relatively high melting points, in particular for substances for which Table C requires a heating system on board or a possibility of heating, it was possible to generate estimates which allow for the assignment of subgroup II B3. This result is to be implemented in the form of a new footnote 14 for Table C.

19. The documents submitted by EBU/ESO also contain a list of substances which should be subjected to further examination. PTB undertook to check whether there are already measurement results available for these substances (*Note: the additional amendments resulting from this examination are listed separately.*). Otherwise, the working group supported examinations to determine the maximum experimental safe gaps for further substances relevant to carriage.

Proposals

20. The working group proposes to amend column (16) Explosion group of Table C to read "II A" for the following entries:

UN 1120	BUTANOLS (sec-BUTYLALCOHOL),
UN 1191	OCTYL ALDEHYDES (n-OCTYLALDEHYDE),
UN 1229	MESITYL OXYDE,
UN 1783	HEXAMETHYLENEDIAMINE SOLUTION, PG II,
UN 1783	HEXAMETHYLENEDIAMINE SOLUTION, PG III,
UN 2048	DICYCLOPENTADIENE,
UN 2053	METHYL ISOBUTYL CARBINOL,
UN 2057	TRIPROPYLENE, PG II,

- UN 2057 TRIPROPYLENE, PG III,
- UN 2357 CYCLOHEXYLAMINE,
- UN 2485 n-BUTYL ISOCYANATE,
- UN 2486 ISOBUTYL ISOCYANATE and
- UN 2531 METHACRYLIC ACID, STABILIZED.

Additionally, as a result of the subsequent check by PTB:

- UN 2381 DIMETHYL DISULPHIDE and
- UN 2618 VINYL TOLUENES, STABILIZED.

21. The working group proposes to amend column (16) Explosion group of Table C to read “II B (II B1)” for the following entries:

- UN 1163 DIMETHYLHYDRAZINE, UNSYMMETRICAL,
- UN 1274 n-PROPANOL or PROPYL ALCOHOL, NORMAL, PG II,
- UN 1274 n-PROPANOL or PROPYL ALCOHOL, NORMAL, PG III and
- UN 3475 ETHANOL AND GASOLINE MIXTURE or ETHANOL AND

MOTOR SPIRIT MIXTURE or ETHANOL AND PETROL MIXTURE, with more than 90 % ethanol

22. The working group proposes to amend column (16) Explosion group of Table C to read “II B (II B2)” for the following entries:

- UN 1188 ETHYLENE GLYCOL MONOMETHYL ETHER and
- UN 1275 PROPIONALDEHYDE.

23. The working group proposes to amend column (16) Explosion group of Table C to read “II B (II B3)” for the following entries:

- UN 1280 PROPYLENE OXIDE,
- UN 2309 OCTADIENE (1,7-OCTADIENE) and
- UN 2983 ETHYLENE OXIDE AND PROPYLENE OXIDE MIXTURE, with not more than 30 % ethylene oxide.

Additionally, as a result of the subsequent check by PTB:

- UN 1991 CHLOROPRENE, STABILIZED.

24. The working group proposes to add, at the end of 3.2.3.2, Table C, Footnotes related to the list of substances, a new footnote to read as follows:

“14) No maximum experimental safe gap (MESG) has been determined in accordance with a standardized determination procedure; thus, the substance is provisionally assigned to explosion group II B3, which is considered to be safe.”

25. The working group proposes to amend column (16) Explosion group of Table C to read “II B (II B3¹⁴)” for the following entries:

- UN 2205 ADIPONITRILE and
- UN 2259 TRIETHYLENETETRAMINE.

26. The working group proposes to amend, in the row where only a possibility of cargo heating is required in column (9) Cargo tank equipment, column (16) explosion group of Table C to read “II B (II B3)¹⁴⁾” for the following entries:

UN 1578	CHLORONITROBENZENES, SOLID, MOLTEN,
UN 1663	NITROPHENOLS,
UN 2078	TOLUENE DIISOCYANATE (and isomeric mixtures) (2,4-TOLUENE DIISOCYANATE),
UN 2280	HEXAMETHYLENEDIAMINE, SOLID, MOLTEN and
UN 3446	NITROTOLUENES, SOLID, MOLTEN.

Collective entries

27. To solve the problem of assigning subgroups to collective entries which are currently assigned to explosion group II B in column (16) of Table C, three options were discussed:

- (1) Add a footnote in column (16) to the relevant entries in Table C which states that, where there is relevant data or information concerning a specific substance to be carried, the provision on the equipment with autonomous protection systems of explosion group II B may be derogated from;
- (2) In the respective entries in Table C, an additional entry is inserted with column (16) reading explosion group “II B (II B3)”. In this new entry, a new remark 44 is added in column (20) which states that a substance shall only be assigned to this entry where there is measurement data or verified information that allows for an assignment to subgroup II B3 of explosion group II B; or
- (3) For the respective entries in Table C, three additional entries are inserted with column (16) reading explosion group “II B (II B3)”, “II B (II B2)” and “II B (II B3)”, respectively. In these new entries, a new remark 44 is added in column (20) which states that a substance shall only be assigned to this entry where there is measurement data or verified information that allows for an assignment to the subgroup of explosion group II B stated in column (16).

The possibility of developing solutions by combining the mentioned options was dismissed as being too complicated to apply.

28. For reasons of transparency, clarity and thus user-friendliness, the working group favoured option 2, i.e. adding one entry in each case in Table C. The simple approach to drawing up and applying the ship substance list was especially emphasized in this context.

29. The representative of Germany stated that for such an assignment it was not sufficient to simply make reference to the approval by the authorities of the facilities of the filler and unloader who handle the substance in question. Industry representatives noted that the shore facilities had already undergone approval procedures under the responsibility of national and regional authorities within the framework of the implementation of provisions in other areas of law (e.g. environmental legislation).

Proposal

30. Add the following entries to 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	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 cones/blue lights	Additional requirements/Remarks	
1224	KETONES, LIQUID, N.O.S.	3 F1	II	3+(N1, N2, N3, CMR, F or S)	*	*	*	*	*	*	*	*	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	*	1	14; 27; 44 *see 3.2.3.3	
1224	KETONES, LIQUID, N.O.S.	3 F1	III	3+(N1, N2, N3, CMR, F or S)	*	*	*	*	*	*	*	*	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	*	0	14; 27; 44 *see 3.2.3.3	
1267	PETROLEUM CRUDE OIL WITH MORE THAN 10% BENZENE INITIAL BOILING POINT ≤ 60 °C	3 F1	I	3+CMR+F+(N1, N2, N3)	C	1	1			95	1	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	PP, EP, EX, TOX, A	1	29; 43; 44		
1267	PETROLEUM CRUDE OIL WITH MORE THAN 10% BENZENE INITIAL BOILING POINT ≤ 60 °C	3 F1	II	3+CMR+F+(N1, N2, N3)	C	1	1			95	1	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	PP, EP, EX, TOX, A	1	29; 44		

(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
1267	PETROLEUM CRUDE OIL WITH MORE THAN 10% BENZENE INITIAL BOILING POINT ≤ 60 °C	3	F1	III	3+CMR+ F+(N1, N2, N3)	C	1	1		95		1	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	PP, EP, EX, TOX, A	0	29; 44	
1267	PETROLEUM CRUDE OIL WITH MORE THAN 10% BENZENE 60 °C < INITIAL BOILING POINT ≤ 85 °C	3	F1	II	3+CMR+ F+(N1, N2, N3)	C	2	2	3	50	95	2	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	PP, EP, EX, TOX, A	1	23; 29; 38; 44	
1267	PETROLEUM CRUDE OIL WITH MORE THAN 10% BENZENE 60 °C < INITIAL BOILING POINT ≤ 85 °C	3	F1	III	3+CMR+ F+(N1, N2, N3)	C	2	2	3	50	95	2	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	PP, EP, EX, TOX, A	1	23; 29; 38; 44	
1267	PETROLEUM CRUDE OIL WITH MORE THAN 10% BENZENE 85 °C < INITIAL BOILING POINT ≤ 115 °C	3	F1	II	3+CMR+ F+(N1, N2, N3)	C	2	2		50	95	2	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	PP, EP, EX, TOX, A	1	29; 44	
1267	PETROLEUM CRUDE OIL WITH MORE THAN 10% BENZENE 85 °C < INITIAL BOILING POINT ≤ 115 °C	3	F1	III	3+CMR+ F+(N1, N2, N3)	C	2	2		50	95	2	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	PP, EP, EX, TOX, A	0	29; 44	
1267	PETROLEUM CRUDE OIL WITH MORE THAN 10% BENZENE INITIAL BOILING POINT > 115 °C	3	F1	II	3+CMR+ F+(N1, N2, N3)	C	2	2		35	95	2	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	PP, EP, EX, TOX, A	1	29; 44	

(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
1267	PETROLEUM CRUDE OIL WITH MORE THAN 10% BENZENE INITIAL BOILING POINT > 115 °C	3	F1	III	3+CMR+ F+(N1, N2, N3)	C	2	2		35	95		2	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	PP, EP, EX, TOX, A	0	29; 44
1267	PETROLEUM CRUDE OIL	3	F1	I	3+(N1, N2, N3, CMR, F)	*	*	*	*	*	*	*	*	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	*	1	14; 44 *see 3.2.3.3
1267	PETROLEUM CRUDE OIL	3	F1	II	3+(N1, N2, N3, CMR, F)	*	*	*	*	*	*	*	*	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	*	1	14; 44 *see 3.2.3.3
1267	PETROLEUM CRUDE OIL	3	F1	III	3+(N1, N2, N3, CMR, F)	*	*	*	*	*	*	*	*	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	*	0	14; 44 *see 3.2.3.3
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S. WITH MORE THAN 10% BENZENE INITIAL BOILING POINT ≤ 60 °C	3	F1	I	3+CMR+ F+(N1, N2, N3)	C	1	1			95		1	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	PP, EP, EX, TOX, A	1	27; 29; 43; 44
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S. WITH MORE THAN 10% BENZENE INITIAL BOILING POINT ≤ 60 °C	3	F1	II	3+CMR+ F+(N1, N2, N3)	C	1	1			95		1	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	PP, EP, EX, TOX, A	1	27; 29; 44

(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S. WITH MORE THAN 10% BENZENE 60 °C < INITIAL BOILING POINT ≤ 85 °C	3	F1	II	3+CMR+ F+(N1, N2, N3)	C	2	2	3	50	95		2	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	PP, EP, EX, TOX, A	1	23; 27; 29; 38; 44
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S. WITH MORE THAN 10% BENZENE 85 °C < INITIAL BOILING POINT ≤ 115 °C	3	F1	II	3+CMR+ F+(N1, N2, N3)	C	2	2		50	95		2	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	PP, EP, EX, TOX, A	1	27; 29; 44
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S. WITH MORE THAN 10% BENZENE INITIAL BOILING POINT > 115 °C	3	F1	II	3+CMR+ F+(N1, N2, N3)	C	2	2		35	95		2	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	PP, EP, EX, TOX, A	1	27; 29; 44
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S.	3	F1	I	3+(N1, N2, N3, CMR, F)	*	*	*	*	*	*		*	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	*	1	14; 27; 44 *see 3.2.3.3
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S.	3	F1	II	3+(N1, N2, N3, CMR, F)	*	*	*	*	*	*		*	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	*	1	14; 27; 44 *see 3.2.3.3

(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S.	3	F1	III	3+(N1, N2, N3, CMR, F)	*	*	*	*	*	*		*	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	*	0	14; 27; 44 *see 3.2.3.3
1863	FUEL, AVIATION, TURBINE ENGINE WITH MORE THAN 10% BENZENE INITIAL BOILING POINT ≤ 60 °C	3	F1	I	3+CMR+ F+(N1, N2, N3)	C	1	1			95		1	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	PP, EP, EX, TOX, A	1	29; 43; 44
1863	FUEL, AVIATION, TURBINE ENGINE WITH MORE THAN 10% BENZENE INITIAL BOILING POINT ≤ 60 °C	3	F1	II	3+CMR+ F+(N1, N2, N3)	C	1	1			95		1	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	PP, EP, EX, TOX, A	1	29; 44
1863	FUEL, AVIATION, TURBINE ENGINE WITH MORE THAN 10% BENZENE 60 °C < INITIAL BOILING POINT ≤ 85 °C	3	F1	III	3+CMR+ F+(N1, N2, N3)	C	2	2	3	50	95		2	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	PP, EP, EX, TOX, A	0	23; 29; 38; 44
1863	FUEL, AVIATION, TURBINE ENGINE WITH MORE THAN 10% BENZENE 85 °C < INITIAL BOILING POINT ≤ 115 °C	3	F1	III	3+CMR+ F+(N1, N2, N3)	C	2	2		50	95		2	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	PP, EP, EX, TOX, A	0	29; 44

(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
1863	FUEL, AVIATION, TURBINE ENGINE WITH MORE THAN 10% BENZENE INITIAL BOILING POINT > 115 °C	3	F1	III	3+CMR+F+(N1, N2, N3)	C	2	2		35	95		2	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	PP, EP, EX, TOX, A	0	29; 44
1863	FUEL, AVIATION, TURBINE ENGINE	3	F1	I	3+(N1, N2, N3, CMR, F)	*	*	*	*	*	*	*	*	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	*	1	14; 44 *see 3.2.3.3
1863	FUEL, AVIATION, TURBINE ENGINE	3	F1	II	3+(N1, N2, N3, CMR, F)	*	*	*	*	*	*	*	*	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	*	1	14; 44 *see 3.2.3.3
1863	FUEL, AVIATION, TURBINE ENGINE	3	F1	III	3+(N1, N2, N3, CMR, F)	*	*	*	*	*	*	*	*	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	*	0	14; 44 *see 3.2.3.3
1986	ALCOHOLS, FLAMMABLE, TOXIC, N.O.S.	3	FT 1	I	3+6.1+(N1, N2, N3, CMR, F or S)	C	1	1	*	*	95		1	no	T4 ³⁾	II B ⁴⁾ (II B3)	yes	PP, EP, EX, TOX, A	2	27; 29; 44 *see 3.2.3.3
1986	ALCOHOLS, FLAMMABLE, TOXIC, N.O.S.	3	FT 1	I	3+6.1+(N1, N2, N3, CMR, F or S)	C	2	2	*	*	95		1	no	T4 ³⁾	II B ⁴⁾ (II B3)	yes	PP, EP, EX, TOX, A	2	27; 29; 44 *see 3.2.3.3
1986	ALCOHOLS, FLAMMABLE, TOXIC, N.O.S.	3	FT 1	II	3+6.1+(N1, N2, N3, CMR, F or S)	C	2	2	*	*	95		2	no	T4 ³⁾	II B ⁴⁾ (II B3)	yes	PP, EP, EX, TOX, A	2	27; 29; 44 *see 3.2.3.3
1986	ALCOHOLS, FLAMMABLE, TOXIC, N.O.S.	3	FT 1	III	3+6.1+(N1, N2, N3, CMR, F or S)	C	2	2	*	*	95		2	no	T4 ³⁾	II B ⁴⁾ (II B3)	yes	PP, EP, EX, TOX, A	0	27; 29; 44 *see 3.2.3.3

(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
1987	ALCOHOLS, N.O.S.	3	F1	II	3+(N1, N2, N3, CMR, F or S)	*	*	*	*	*	*		*	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	*	1	14; 27; 29; 44*see 3.2.3.3
1987	ALCOHOLS, N.O.S.	3	F1	III	3+(N1, N2, N3, CMR, F or S)	*	*	*	*	*	*		*	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	*	0	14; 27; 44 *see 3.2.3.3
1989	ALDEHYDES, N.O.S.	3	F1	II	3+(N1, N2, N3, CMR, F or S)	*	*	*	*	*	*		*	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	*	1	14; 27; 29; 44 *see 3.2.3.3
1989	ALDEHYDES, N.O.S.	3	F1	III	3+(N1, N2, N3, CMR, F or S)	*	*	*	*	*	*		*	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	*	0	14; 27; 44 *see 3.2.3.3
1992	FLAMMABLE LIQUID, TOXIC, N.O.S.	3	FT 1	I	3+6.1+(N 1, N2, N3, CMR, F or S)	C	1	1	*	*	95		1	no	T4 ³⁾	II B ⁴⁾ (II B3)	yes	PP, EP, EX, TOX, A	2	27; 29; 44 *see 3.2.3.3
1992	FLAMMABLE LIQUID, TOXIC, N.O.S	3	FT 1	I	3+6.1+(N 1, N2, N3, CMR, F or S)	C	2	2	*	*	95		1	no	T4 ³⁾	II B ⁴⁾ (II B3)	yes	PP, EP, EX, TOX, A	2	27; 29; 44 *see 3.2.3.3
1992	FLAMMABLE LIQUID, TOXIC, N.O.S	3	FT 1	II	3+6.1+(N 1, N2, N3, CMR, F or S)	C	2	2	*	*	95		2	no	T4 ³⁾	II B ⁴⁾ (II B3)	yes	PP, EP, EX, TOX, A	2	27; 29; 44 *see 3.2.3.3

(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
1992	FLAMMABLE LIQUID, TOXIC, N.O.S	3	FT 1	III	3+6.1+(N 1, N2, N3, CMR, F or S)	C	2	2	*	*	95	2	no	T4 ³⁾	II B ⁴⁾ (II B3)	yes	PP, EP, EX, TOX, A	0	27; 29; 44 *see 3.2.3.3	
1993	FLAMMABLE LIQUID, N.O.S. WITH MORE THAN 10% BENZENE INITIAL BOILING POINT ≤ 60 °C	3	F1	I	3+(N1, N2, N3, CMR, F)	C	1	1			95	1	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	PP, EP, EX, TOX, A	1	29; 44	
1993	FLAMMABLE LIQUID, N.O.S. WITH MORE THAN 10% BENZENE INITIAL BOILING POINT ≤ 60 °C	3	F1	II	3+(N1, N2, N3, CMR, F)	C	1	1			95	1	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	PP, EP, EX, TOX, A	1	29; 44	
1993	FLAMMABLE LIQUID, N.O.S. WITH MORE THAN 10% BENZENE INITIAL BOILING POINT ≤ 60 °C	3	F1	III	3+(N1, N2, N3, CMR, F)	C	1	1			95	1	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	PP, EP, EX, TOX, A	0	29; 44	
1993	FLAMMABLE LIQUID, N.O.S. WITH MORE THAN 10% BENZENE 60 °C < INITIAL BOILING POINT ≤ 85 °C	3	F1	II	3+(N1, N2, N3, CMR, F)	C	2	2	3	50	95	2	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	PP, EP, EX, TOX, A	1	23; 29; 38; 44	
1993	FLAMMABLE LIQUID, N.O.S. WITH MORE THAN 10% BENZENE 60 °C < INITIAL BOILING POINT ≤ 85 °C	3	F1	III	3+(N1, N2, N3, CMR, F)	C	2	2	3	50	95	2	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	PP, EP, EX, TOX, A	0	23; 29; 38; 44	

(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
1993	FLAMMABLE LIQUID, N.O.S. WITH MORE THAN 10% BENZENE 85 °C < INITIAL BOILING POINT ≤ 115 °C	3	F1	II	3+(N1, N2, N3, CMR, F)	C	2	2		50	95		2	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	PP, EP, EX, TOX, A	1	29; 44
1993	FLAMMABLE LIQUID, N.O.S. WITH MORE THAN 10% BENZENE 85 °C < INITIAL BOILING POINT ≤ 115 °C	3	F1	III	3+(N1, N2, N3, CMR, F)	C	2	2		50	95		2	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	PP, EP, EX, TOX, A	0	29; 44
1993	FLAMMABLE LIQUID, N.O.S. WITH MORE THAN 10% BENZENE INITIAL BOILING POINT > 115 °C	3	F1	II	3+(N1, N2, N3, CMR, F)	C	2	2		35	95		2	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	PP, EP, EX, TOX, A	1	29; 44
1993	FLAMMABLE LIQUID, N.O.S. WITH MORE THAN 10% BENZENE INITIAL BOILING POINT > 115 °C	3	F1	III	3+(N1, N2, N3, CMR, F)	C	2	2		35	95		2	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	PP, EP, EX, TOX, A	0	29; 44
1993	FLAMMABLE LIQUID, N.O.S.	3	F1	I	3+(N1, N2, N3, CMR, F)	*	*	*	*	*	*		*	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	*	1	14; 44*see 3.2.3.3
1993	FLAMMABLE LIQUID, N.O.S.	3	F1	II	3+(N1, N2, N3, CMR, F)	*	*	*	*	*	*		*	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	*	1	14; 44 *see 3.2.3.3
1993	FLAMMABLE LIQUID, N.O.S.	3	F1	III	3+(N1, N2, N3, CMR, F)	*	*	*	*	*	*		*	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	*	0	14; 44 *see 3.2.3.3

(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
2920	CORROSIVE LIQUID, FLAMMABLE, N.O.S. (AQUEOUS SOLUTION OF HEXADECYLTRIMET HYL-AMMONIUM CHLORIDE (50 %) AND ETHANOL (35 %))	8	CF 1	II	8+3+F	N	2	3		10	95	0,9	3	yes	T2	II B (II B3)	yes	PP, EP, EX, A	1	6: +7 °C; 17; 34; 44
2924	FLAMMABLE LIQUID, CORROSIVE, N.O.S.	3	FC	I	3+8+(N1, N2, N3, CMR, F or S)	C	1	1	*	*	95		1	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	*	1	27; 29; 44 *see 3.2.3.3
2924	FLAMMABLE LIQUID, CORROSIVE, N.O.S.	3	FC	I	3+8+(N1, N2, N3, CMR, F or S)	C	2	2	*	*	95		1	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	*	1	27; 29; 44 *see 3.2.3.3
2924	FLAMMABLE LIQUID, CORROSIVE, N.O.S.	3	FC	II	3+8+(N1, N2, N3, CMR, F or S)	C	2	2	*	*	95		2	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	*	1	27; 29; 44 *see 3.2.3.3
2924	FLAMMABLE LIQUID, CORROSIVE, N.O.S.	3	FC	III	3+8+(N1, N2, N3, CMR, F or S)	*	*	*	*	*	*		*	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	*	0	27; 34 *see 3.2.3.3
2929	TOXIC LIQUID, FLAMMABLE, ORGANIC, N.O.S.	6.1	TF 1	I	6.1+3+(N 1, N2, N3, CMR, F or S)	C	2	2	*	*	95		1	no	T4 ³⁾	II B ⁴⁾ (II B3)	yes	PP, EP, EX, TOX, A	2	27; 29; 44 *see 3.2.3.3
2929	TOXIC LIQUID, FLAMMABLE, ORGANIC, N.O.S.	6.1	TF 1	II	6.1+3+(N 1, N2, N3, CMR, F or S)	C	2	2	*	*	95		2	no	T4 ³⁾	II B ⁴⁾ (II B3)	yes	PP, EP, EX, TOX, A	2	27; 29; 44 *see 3.2.3.3

(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
3256	ELEVATED TEMPERATURE LIQUID, FLAMMABLE, N.O.S. with flash-point above 60 °C, at or above its flash-point	3	F2	III	3+(N1, N2, N3, CMR, F or S)	*	*	*	*	*	95		*	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	*	0	7; 27; 44*see 3.2.3.3
3271	ETHERS, N.O.S.	3	F1	II	3+(N1, N2, N3, CMR, F or S)	*	*	*	*	*	*		*	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	*	1	14, 27; 29; 44 *see 3.2.3.3
3271	ETHERS, N.O.S.	3	F1	III	3+(N1, N2, N3, CMR, F or S)	*	*	*	*	*	*		*	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	*	0	14; 27; 44 *see 3.2.3.3
3272	ESTERS, N.O.S.	3	F1	II	3+(N1, N2, N3, CMR, F or S)	*	*	*	*	*	*		*	yes	T2	II B ⁴⁾ (II B3)	yes	*	1	14, 27; 29; 44 *see 3.2.3.3
3272	ESTERS, N.O.S.	3	F1	III	3+(N1, N2, N3, CMR, F or S)	*	*	*	*	*	*		*	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	*	0	14; 27; 44 *see 3.2.3.3
3286	FLAMMABLE LIQUID, TOXIC, CORROSIVE, N.O.S.	3	FT C	I	3+6.1+8+ (N1, N2, N3, CMR, F or S)	C	1	1	*	*	95		1	no	T4 ³⁾	II B ⁴⁾ (II B3)	yes	PP, EP, EX, TOX, A	2	27; 29; 44 *see 3.2.3.3
3286	FLAMMABLE LIQUID, TOXIC, CORROSIVE, N.O.S.	3	FT C	I	3+6.1+8+ (N1, N2, N3, CMR, F or S)	C	2	2	*	*	95		1	no	T4 ³⁾	II B ⁴⁾ (II B3)	yes	PP, EP, EX, TOX, A	2	27; 29; 44 *see 3.2.3.3

(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
3286	FLAMMABLE LIQUID, TOXIC, CORROSIVE, N.O.S.	3	FT C	II	3+6.1+8+ (N1, N2, N3, CMR, F or S)	C	2	2	*	*	95	2	no	T4 ³⁾	II B ⁴⁾ (II B3)	yes	PP, EP, EX, TOX, A	2	27; 29; 44 *see 3.2.3.3	
3295	HYDROCARBONS, LIQUID, N.O.S.	3	F1	I	3+(N1, N2, N3, CMR, F)	*	*	*	*	*	*	*	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	*	1	14; 44 *see 3.2.3.3	
3295	HYDROCARBONS, LIQUID, N.O.S.	3	F1	II	3+(N1, N2, N3, CMR, F)	*	*	*	*	*	*	*	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	*	1	14; 44 *see 3.2.3.3	
3295	HYDROCARBONS, LIQUID, N.O.S.	3	F1	III	3+(N1, N2, N3, CMR, F)	*	*	*	*	*	*	*	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	*	0	14; 44*see 3.2.3.3	
3295	HYDROCARBONS, LIQUID, N.O.S. WITH MORE THAN 10% BENZENE INITIAL BOILING POINT ≤ 60 °C	3	F1	I	3+CMR+ (N1, N2, N3)	C	1	1			95	1	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	PP, EP, EX, TOX, A	1	29; 44	
3295	HYDROCARBONS, LIQUID, N.O.S. WITH MORE THAN 10% BENZENE INITIAL BOILING POINT ≤ 60 °C	3	F1	II	3+CMR+ (N1, N2, N3)	C	1	1			95	1	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	PP, EP, EX, TOX, A	1	29; 44	
3295	HYDROCARBONS, LIQUID, N.O.S. WITH MORE THAN 10% BENZENE INITIAL BOILING POINT ≤ 60 °C	3	F1	III	3+CMR+ (N1, N2, N3)	C	1	1			95	1	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	PP, EP, EX, TOX, A	0	29; 44	

(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
3295	HYDROCARBONS, LIQUID, N.O.S. WITH MORE THAN 10% BENZENE 60 °C < INITIAL BOILING POINT ≤ 85 °C	3	F1	II	3+CMR+ (N1, N2, N3)	C	2	2	3	50	95		2	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	PP, EP, EX, TOX, A	1	23; 29; 38; 44
3295	HYDROCARBONS, LIQUID, N.O.S. WITH MORE THAN 10% BENZENE 60 °C < INITIAL BOILING POINT ≤ 85 °C	3	F1	III	3+CMR+ (N1, N2, N3)	C	2	2	3	50	95		2	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	PP, EP, EX, TOX, A	0	23; 29; 38; 44
3295	HYDROCARBONS, LIQUID, N.O.S. WITH MORE THAN 10% BENZENE 85 °C < INITIAL BOILING POINT ≤ 115 °C	3	F1	II	3+CMR+ (N1, N2, N3)	C	2	2		50	95		2	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	PP, EP, EX, TOX, A	1	29; 44
3295	HYDROCARBONS, LIQUID, N.O.S. WITH MORE THAN 10% BENZENE 85 °C < INITIAL BOILING POINT ≤ 115 °C	3	F1	III	3+CMR+ (N1, N2, N3)	C	2	2		50	95		2	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	PP, EP, EX, TOX, A	0	29; 44
3295	HYDROCARBONS, LIQUID, N.O.S. WITH MORE THAN 10% BENZENE INITIAL BOILING POINT > 115°C	3	F1	II	3+CMR+ (N1, N2, N3)	C	2	2		35	95		2	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	PP, EP, EX, TOX, A	1	29; 44
3295	HYDROCARBONS, LIQUID, N.O.S. WITH MORE THAN 10% BENZENE INITIAL BOILING POINT > 115°C	3	F1	III	3+CMR+ (N1, N2, N3)	C	2	2		35	95		2	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	PP, EP, EX, TOX, A	0	29; 44

(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
3295	HYDROCARBONS, LIQUID, N.O.S. CONTAINING ISOPRENE AND PENTADIENE, STABILIZED	3	F1	I	3+inst.+N 2+CMR	C	2	2	3	50	95	0,67 8	1	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	PP, EX, A	1	3; 27; 44
3494	PETROLEUM SOUR CRUDE OIL, FLAMMABLE, TOXIC	3	FT 1	I	3+6.1+(N 1, N2, N3, CMR, F)	C	*	*	*	*	95		1	no	T4 ³⁾	II B ⁴⁾ (II B3)	yes	PP, EP, EX, TOX, A	2	14; 27; 44 * see 3.2.3.3
3494	PETROLEUM SOUR CRUDE OIL, FLAMMABLE, TOXIC	3	FT 1	II	3+6.1+(N 1, N2, N3, CMR, F)	C	*	*	*	*	95		2	no	T4 ³⁾	II B ⁴⁾ (II B3)	yes	PP, EP, EX, TOX, A	2	14; 27; 44 * see 3.2.3.3
3494	PETROLEUM SOUR CRUDE OIL, FLAMMABLE, TOXIC	3	FT 1	III	3+6.1+(N 1, N2, N3, CMR, F)	C	*	*	*	*	95		2	no	T4 ³⁾	II B ⁴⁾ (II B3)	yes	PP, EP, EX, TOX, A	0	14; 27; 44 * see 3.2.3.3
9001	SUBSTANCES WITH A FLASH-POINT ABOVE 60 °C handed over for carriage or carried at a TEMPERATURE WITHIN A RANGE OF 15K BELOW THEIR FLASH-POINT OR SUBSTANCES WITH A FLASH-POINT > 60 °C, HEATED TO LESS THAN 15 K FROM THE FLASH-POINT	3	F4		3+(N1, N2, N3, CMR, F or S)	C	*	*	*	*	*		*	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	*	0	27; 44 *see 3.2.3.3

(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
9002	SUBSTANCES HAVING A SELF- IGNITION TEMPERATURE ≤ 200 °C, N.O.S.	3	F5		3+(N1, N2, N3, CMR, F or S)	C	1	1	*	*	95		1	yes	T4	II B ⁴⁾ (II B3)	yes	*	0	44 *see 3.2.3.3

31. It is proposed to insert in 3.2.3.1 Explanations concerning Table C for column (20) Additional requirements/Remarks a new remark to read as follows:

“44. A substance shall only be assigned to this entry where there is measurement data or verified information in accordance with IEC 60079-20-1 or equivalent that allows for an assignment to subgroup II B3 of explosion group II B.”

32. Within the context of the assignment of explosion protection groups, the proposals made by the informal working group on explosion protection with regard to specifying requirements to be met by the shore side in 7.2.4.25.5, 1.4.3.3 (r) and 1.4.3.7.1 (i) in order to protect the vessel against detonations and the passage of flames from the shore were discussed in detail also in the informal working group on substances. As the legal basis for this specification could not be determined with certainty and, according to information provided by the loaders, a protection required for the product to be loaded is part of the facility's approval, the informal working group on substances proposes to delete this specification from the proposal of the informal working group on explosion protection (see also informal document INF.8).

E. Examination of the requirement of a possibility of cargo heating for UN 1307

33. The isomers of xylene have melting points of - 25 °C (o-xylene), - 48 °C (m-xylene) and + 13 °C (p-xylene).

34. In accordance with 3.2.3.3 or 3.2.4.3 of ADN, respectively, a possibility of cargo heating is required when the melting point of the substance to be transported is + 15 °C or greater, or when the melting point of the substance to be transported is greater than 0 °C but less than + 15 °C and the outside temperature is no more than 4 K above the melting point. In the latter case, in column (20) reference is made to remark “6” as well as to the temperature, which is: melting point + 4 K.

35. The working group concluded that the conditions of carriage laid down in ADN for the various entries of UN 1307 are correct.

36. Going beyond the mandate issued by the Safety Committee, the group dealt with the following issues:

F. N.O.S. entries for mixtures containing more than 10 % benzene

37. Back when the entries of the UN numbers in question were systematized, the issue of substances containing more than 10 % benzene was overlooked. The resulting general limitation of substances containing more than 10 % benzene and having an initial boiling point of not more than 60 °C to type C vessels with pressure cargo tanks was not intended and, moreover, is not necessary from the point of view of safety. When the transitional period for the application of ADN 2017 ends on 30 June 2017, this will have far-reaching consequences for the industry. In the opinion of the informal working group, it is not possible to continue to apply, at least in the interim, the provisions of ADN 2015 after 30 June 2017.

38. The solution discussed by the informal working group would be to add, for the three packing groups, n.o.s. positions for mixtures containing more than 10 % benzene making reference to the flowchart. This creates the possibility again to follow the flowchart, calculate the cargo tank internal pressure and lay down the conditions of carriage (cargo tank design, cargo tank type, cargo tank equipment and opening pressure of the high-velocity vent valve).

39. In the further course of the discussion, the working group noted that, when assigning substances to entries in Table C, the erroneous impression might be given that the entries whose name and description contain additional information, such as initial boiling point or vapour pressure (for mixtures for which only insufficient data is available), are the more specific entries that describe the substance in a more detailed way and should be given

priority in the assignment. To prevent this misinterpretation, it is to be proposed to insert a statement into ADN that, when assigning substances, entries in which reference is made to the flowchart (i.e. all information required to calculate the cargo tank internal pressure is available) should be given priority.

40. If the Safety Committee agrees to the proposals, the representatives of the ADR Contracting Parties could consider entering into a multilateral agreement on these provisions in anticipation of ADN 2019. Until then, the only possibility is to seek interim solutions by means of regulations at national level.

41. The working group did not reach a conclusion as regards the question that arose during the discussion as to why there are different approaches to determining the opening pressure of the high-velocity vent valves for type C tank vessels (3.2.3.3 Scheme A) and type N tank vessels (3.2.3.3 Scheme B). Harmonizing the approach would, however, require far-reaching and profound amendments to the provisions of ADN. The working group is of the opinion that the Safety Committee should decide whether further work on this issue is needed, and, if so, give the informal working group on substances a mandate for this.

Proposals

42. It is proposed to amend the last indent in 2.3.1 Explanations concerning Table C to read as follows:

“- If a cell contains an asterisk, “*”, the applicable requirements should be determined by applying 3.2.3.3. The determination of the applicable requirements by applying 3.2.3.3 should take precedence over using the entries for mixtures for which no sufficient data is available.”

43. Add the following entries to Table C:

(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
<i>UN No. or substance identification No.</i>	<i>Name and description</i>	<i>Class</i>	<i>Packing group</i>	<i>Dangers</i>	<i>Type of tank vessel</i>	<i>Cargo tank design</i>	<i>Cargo tank type</i>	<i>Cargo tank equipment</i>	<i>Opening pressure of the high-velocity vent valve in kPa</i>	<i>Maximum degree of filling in %</i>	<i>Relative density at 20 °C</i>	<i>Type of sampling device</i>	<i>Pump room below deck permitted</i>	<i>Temperature class</i>	<i>Explosion group</i>	<i>Anti-explosion protection required</i>	<i>Equipment required</i>	<i>Number of cones/blue lights</i>	<i>Additional requirements/Remarks</i>	
1203	MOTOR SPIRIT or GASOLINE or PETROL, WITH MORE THAN 10 % BENZENE	3	F1	II	3+N2+ CMR+F	C	*	*	*	*	*	*	yes	T3	II A	yes	*	1	*see 3.2.3.3	
1267	PETROLEUM CRUDE OIL WITH MORE THAN 10% BENZENE	3	F1	I	3+CMR +F+(N1, N2, N3)	C	*	*	*	*	*	*	yes	T4 ³⁾	II B ⁴⁾	yes	*	1	*see 3.2.3.3	
1267	PETROLEUM CRUDE OIL WITH MORE THAN 10% BENZENE	3	F1	II	3+CMR +F+(N1, N2, N3)	C	*	*	*	*	*	*	yes	T4 ³⁾	II B ⁴⁾	yes	*	1	*see 3.2.3.3	
1267	PETROLEUM CRUDE OIL WITH MORE THAN 10% BENZENE	3	F1	III	3+CMR +F+(N1, N2, N3)	C	*	*	*	*	*	*	yes	T4 ³⁾	II B ⁴⁾	yes	*	0	*see 3.2.3.3	
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S. WITH MORE THAN 10% BENZENE	3	F1	I	3+CMR +F+(N1, N2, N3)	C	*	*	*	*	*	*	yes	T4 ³⁾	II B ⁴⁾	yes	*	1	27 *see 3.2.3.3	

(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S. WITH MORE THAN 10% BENZENE	3	F1	II	3+CMR +F+(N1, N2, N3)	C	*	*	*	*	*	*	yes	T4 ³⁾	II B ⁴⁾	yes	*	1	27 *see 3.2.3.3	
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S. WITH MORE THAN 10% BENZENE	3	F1	III	3+CMR +F+(N1, N2, N3)	C	*	*	*	*	*	*	yes	T4 ³⁾	II B ⁴⁾	yes	*	0	27 *see 3.2.3.3	
1863	FUEL, AVIATION, TURBINE ENGINE WITH MORE THAN 10% BENZENE	3	F1	I	3+CMR +F+(N1, N2, N3)	C	*	*	*	*	*	*	yes	T4 ³⁾	II B ⁴⁾	yes	*	1	*see 3.2.3.3	
1863	FUEL, AVIATION, TURBINE ENGINE WITH MORE THAN 10% BENZENE	3	F1	II	3+CMR +F+(N1, N2, N3)	C	*	*	*	*	*	*	yes	T4 ³⁾	II B ⁴⁾	yes	*	1	*see 3.2.3.3	
1863	FUEL, AVIATION, TURBINE ENGINE WITH MORE THAN 10% BENZENE	3	F1	III	3+CMR +F+(N1, N2, N3)	C	*	*	*	*	*	*	yes	T4 ³⁾	II B ⁴⁾	yes	*	0	*see 3.2.3.3	
1993	FLAMMABLE LIQUID, N.O.S. WITH MORE THAN 10% BENZENE	3	F1	I	3+(N1, N2, N3, CMR, F)	C	*	*	*	*	*	*	yes	T4 ³⁾	II B ⁴⁾	yes	*	1	*see 3.2.3.3	
1993	FLAMMABLE LIQUID, N.O.S. WITH MORE THAN 10% BENZENE	3	F1	II	3+(N1, N2, N3, CMR, F)	C	*	*	*	*	*	*	yes	T4 ³⁾	II B ⁴⁾	yes	*	1	*see 3.2.3.3	
1993	FLAMMABLE LIQUID, N.O.S. WITH MORE THAN 10% BENZENE	3	F1	III	3+(N1, N2, N3, CMR, F)	C	*	*	*	*	*	*	yes	T4 ³⁾	II B ⁴⁾	yes	*	0	*see 3.2.3.3	

(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
3295	HYDROCARBONS, LIQUID, N.O.S. WITH MORE THAN 10% BENZENE	3	F1	I	3+CMR+(N1, N2, N3)	C	*	*	*	*	*	*	yes	T4 ³⁾	II B ⁴⁾	yes	*		1	*see 3.2.3.3
3295	HYDROCARBONS, LIQUID, N.O.S. WITH MORE THAN 10% BENZENE	3	F1	II	3+CMR+(N1, N2, N3)	C	*	*	*	*	*	*	yes	T4 ³⁾	II B ⁴⁾	yes	*		1	*see 3.2.3.3
3295	HYDROCARBONS, LIQUID, N.O.S. WITH MORE THAN 10% BENZENE	3	F1	III	3+CMR+(N1, N2, N3)	C	*	*	*	*	*	*	yes	T4 ³⁾	II B ⁴⁾	yes	*		0	*see 3.2.3.3

44. If the recommendations of the informal working group in paragraph 28 under D. Assignment of subgroups of explosion group IIB, collective entries and the proposals in paragraph 29 are accepted, it is proposed to enter into Table C the following additional entries as a consequential amendment:

(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
<i>UN No. or substance identification No.</i>	<i>Name and description</i>	<i>Class</i>	<i>Packing group</i>	<i>Dangers</i>	<i>Type of tank vessel</i>	<i>Cargo tank design</i>	<i>Cargo tank type</i>	<i>Cargo tank equipment</i>	<i>Opening pressure of the high-velocity vent valve in kPa</i>	<i>Maximum degree of filling in %</i>	<i>Relative density at 20 °C</i>	<i>Type of sampling device</i>	<i>Pump room below deck permitted</i>	<i>Temperature class</i>	<i>Explosion group</i>	<i>Anti-explosion protection required</i>	<i>Equipment required</i>	<i>Number of cones/blue lights</i>	<i>Additional requirements/Remarks</i>	
1267	PETROLEUM CRUDE OIL WITH MORE THAN 10% BENZENE	3	F1	I	3+CMR+F+(N1, N2, N3)	C	*	*	*	*	*	*	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	*		1	44 *see 3.2.3.3
1267	PETROLEUM CRUDE OIL WITH MORE THAN 10% BENZENE	3	F1	II	3+CMR+F+(N1, N2, N3)	C	*	*	*	*	*	*	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	*		1	44 *see 3.2.3.3

(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
1267	PETROLEUM CRUDE OIL WITH MORE THAN 10% BENZENE	3	F1	III	3+CMR C +F+(N1, N2, N3)	C	*	*	*	*	*	*	*	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	*	0	44 *see 3.2.3.3
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S. WITH MORE THAN 10% BENZENE	3	F1	I	3+CMR C +F+(N1, N2, N3)	C	*	*	*	*	*	*	*	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	*	1	27; 44 *see 3.2.3.3
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S. WITH MORE THAN 10% BENZENE	3	F1	II	3+CMR C +F+(N1, N2, N3)	C	*	*	*	*	*	*	*	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	*	1	27; 44 *see 3.2.3.3
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S. WITH MORE THAN 10% BENZENE	3	F1	III	3+CMR C +F+(N1, N2, N3)	C	*	*	*	*	*	*	*	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	*	0	27; 44 *see 3.2.3.3
1863	FUEL, AVIATION, TURBINE ENGINE WITH MORE THAN 10% BENZENE	3	F1	I	3+CMR C +F+(N1, N2, N3)	C	*	*	*	*	*	*	*	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	*	1	44 *see 3.2.3.3
1863	FUEL, AVIATION, TURBINE ENGINE WITH MORE THAN 10% BENZENE	3	F1	II	3+CMR C +F+(N1, N2, N3)	C	*	*	*	*	*	*	*	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	*	1	44 *see 3.2.3.3
1863	FUEL, AVIATION, TURBINE ENGINE WITH MORE THAN 10% BENZENE	3	F1	III	3+CMR C +F+(N1, N2, N3)	C	*	*	*	*	*	*	*	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	*	0	44 *see 3.2.3.3
1993	FLAMMABLE LIQUID, N.O.S. WITH MORE THAN 10% BENZENE	3	F1	I	3+(N1, N2, N3, CMR, F)	C	*	*	*	*	*	*	*	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	*	1	44*see 3.2.3.3

(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
1993	FLAMMABLE LIQUID, N.O.S. WITH MORE THAN 10% BENZENE	3	F1	II	3+(N1, N2, N3, CMR, F)	C	*	*	*	*	*	*	*	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	*	1	44 *see 3.2.3.3
1993	FLAMMABLE LIQUID, N.O.S. WITH MORE THAN 10% BENZENE	3	F1	III	3+(N1, N2, N3, CMR, F)	C	*	*	*	*	*	*	*	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	*	0	44 *see 3.2.3.3
3295	HYDROCARBONS, LIQUID, N.O.S. WITH MORE THAN 10% BENZENE	3	F1	I	3+CMR (N1, N2, N3)	C	*	*	*	*	*	*	*	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	*	1	44 *see 3.2.3.3
3295	HYDROCARBONS, LIQUID, N.O.S. WITH MORE THAN 10% BENZENE	3	F1	II	3+CMR (N1, N2, N3)	C	*	*	*	*	*	*	*	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	*	1	44 *see 3.2.3.3
3295	HYDROCARBONS, LIQUID, N.O.S. WITH MORE THAN 10% BENZENE	3	F1	III	3+CMR (N1, N2, N3)	C	*	*	*	*	*	*	*	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	*	0	44 *see 3.2.3.3

G. Differences between the language versions of the ADN as regards UN 1208 HEXANES in Table C

45. It was noted that in the French version and the German version of ADN 2017 for UN 1208 hexanes there are two entries in Table C while in the English version and the Russian version there is only one entry. In the opinion of the working group, the missing entries should be added to the English version and the Russian version.

46. Moreover, the working group recommends that, for all entries on UN 1208 HEXANES, a range covering all isomers for the relative density at 20 °C be indicated in column (12) of Table C.

47. In the same way, a range covering all isomers for the relative density at 20 °C should be indicated in column (12) of Table C also for UN 1206 heptanes and UN 1262 octanes.

Proposals

48. For all four language versions, the following amendments are proposed:

For UN 1206:

in column (12): replace “0.68” by “0.67 – 0.70”

For UN 1208 first row:

in column (12): replace “0.66” by “0.65 – 0.70”

For UN 1262:

in column (12): replace “0.7” by “0.69 – 0.71”

49. In the English and Russian language versions of ADN, add the respective following entry to Table C:

(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
1208	HEXANES	3	F1	II	3+N 2	N	2	3	3	10	97	0.65 – 0.70	2	yes	T3	II A	yes	PP, EX, A	1	
1208	ГЕКСАН Ы	3	F1	II	3+N2	N	2	3	3	10	97	0.65 – 0.70	2	да	T3	II A	да	PP, EX, A	1	

H. Insertion of a new entry for UN 1288 SHALE OIL in Table C

50. The representative of the Netherlands informed the working group of a need for carriage of UN 1288 SHALE OIL of packing group II in inland tank vessels.

51. In the following, the draft version of two new entries in Table C is provided for information only which, as a result of the discussion in the informal working group, could be proposed for incorporation into ADN. However, the highlighted data on vapour pressure at 50 °C in column (2) and on the explosion group in column (16) is only hypothetical and would still need to be substantiated by providing relevant data in case a corresponding proposal were submitted. Moreover, this would result in consequential amendments to column (8) of Table A.

52. Draft version of two new entries for Table C for UN 1288 SHALE OIL of packing group II:

(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 cones/blue lights	Additional requirements/Remarks
1288	SHALE OIL <u>110 kPa</u> <u>< pD50</u> <u>≤ 175</u> <u>kPa</u>	3	F1	II	3+N2 +CM R	N	2	3		50	97	3	yes	T3	<u>IIA</u>	yes	PP, EP, EX, TOX, A	1	14; 29	
1288	SHALE OIL <u>110 kPa</u> <u>< pD50</u> <u>≤ 150</u> <u>kPa</u>	3	F1	II	3+N2 +CM R	N	2	3	3	10	97	3	yes	T3	<u>IIA</u>	yes	PP, EP, EX, TOX, A	1	14; 29	

I. Adding the ADN specific information to the entries in Table A amended by the Joint Meeting

53. Within the framework of the adaptation to the UN Model Regulations, the Joint Meeting adopted amendments to the list of dangerous goods that were consequently implemented for Table A of ADN 2017. In some entries, however, the ADN specific information in columns (9) to (13) is still missing.

Proposals

54. As a result of the discussion, the working group proposes to the Safety Committee to insert the following information in Table A in the mentioned columns:

for UN 0510:

in column (9):“PP”

in column (11):“LO01” and “HA01, HA03”

in column (12):“1”

for UN 3166, UN 3171, UN 3527 PG III, UN 3530, UN 3531, UN 3532, UN 3533 and UN 5334:

in column (9):“PP”

in column (12):“0”

for UN 3527 PG II:

in column (9):“PP”

in column (12):“1”

for UN 3528 and UN 3529:

in column (9):“PP, EX, A”

in column (10):“VE01”

in column (12):“0”.

J. Amendment of the wording in subsections 3.2.3.3 column (17) and 3.2.4.3 I: Column (17)

55. The criteria that are listed in ADN 2017 in 3.2.3.3 Flowchart, schemes and criteria for determining applicable special requirements (columns (6) to (20) of Table C) Column (17) ‘Determination of whether anti-explosion protection is required for electrical equipment and systems’ and in 3.2.4.3 Criteria for assignment of substances I: Column (17) ‘Determination of whether anti-explosion protection is required for electrical equipment and systems’ to determine in which cases anti-explosion protection is required and in which cases it is not are not identical in the different language versions.

56. The German language version lists four criteria in subsection 3.2.3.3 column (17) for the possible answer ‘Yes’. In the English, French and Russian versions, the criterion

“- for substances that must be transported while heated to a temperature of 15 K or more below their flash-point and where in column (9) (cargo tank equipment) only a possibility of cargo heating (2) and no cargo-heating system on board (4) is required”

is not listed. In subsection 3.2.4.3 I: column (17) of the German language version, the criterion is worded differently, and in the other three language versions, this criterion is missing altogether.

Proposal

57. It is proposed to adapt the wording of subsection 3.2.3.3 column (17) of the English, French and Russian versions as well as the wording of subsection 3.2.4.3 I: column (17) in all four language version to the wording in subsection 3.2.3.3 column (17) of the German version so that in all cases the subsection reads as follows:

”Column (17): Determination of whether anti-explosion protection is required for electrical equipment and systems

- Yes - For substances with a flash-point ≤ 60 °C
- For substances that must be transported while heated to a temperature of less than 15 K below their flash-point
 - For substances that must be transported while heated to a temperature of 15 K or more below their flash-point and where in column (9) (cargo tank equipment) only a possibility of cargo heating (2) and no cargo-heating system on board (4) is required
 - For flammable gases
- No - For all other substances”

K. Adaptation of the wording for corrosive substances containing gases in solution in subsection 3.2.3.3 to the wording of 3.2.4.3

58. In subsection 3.2.4.3 Criteria for assignment of substances A. Columns (6), (7) and (8): Determination of the type of tank vessel, number 4 Corrosive substances, there are the following three bullet points for Corrosive substances liable to produce corrosive vapours:

- Substances assigned to packing group I or II in the list of substances and having a vapour pressure greater than 12.5 kPa (125 mbar) at 50 °C or
- Substances liable to react dangerously with water (for example acid chlorides) or
- Substances containing gases in solution
- These criteria result in the requirement of a closed type N tank vessel whose cargo tank walls must be distinct from vessel hull and a high-velocity vent valve/safety valve opening pressure of 10 kPa.

59. The first two bullet points are correctly reflected in subsection 3.2.3.3 Flowchart for classification of liquids of Classes 3, 6.1, 8 and 9 for carriage in tanks in inland navigation in the third box and in Scheme B: Criteria for equipment of vessels of type N with closed cargo tanks. The last bullet point, however, is missing.

Proposals

60. It is proposed to insert in the third box in subsection 3.2.3.3 Flowchart for classification of liquids of Classes 3, 6.1, 8 and 9 for carriage in tanks in inland navigation after the bullet point “Corrosive substances that react dangerously with water,” an additional bullet point reading “Corrosive substances containing gases in solution”.

61. Moreover, it is proposed to amend the third row in Scheme B: Criteria for equipment of vessels of type N with closed cargo tanks in the column “Corrosive substances” to read as follows: “Packing group I or II with $P_{d50} > 12.5$ kPa or reacting dangerously with water or with gases in solution”