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Economic Commission for Europe**Inland Transport Committee****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-ninth session**

Geneva, 22–26 August 2016

Item 3 (c) of the provisional agenda

Implementation of the European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (ADN): interpretation of the Regulations annexed to ADN**Sub-section 3.2.3.1 of ADN, explanations concerning Table C****Transmitted by the Government of Germany^{1,2}***Summary*

Analytical summary:	Sub-section 3.2.3.1 of ADN, explanations concerning Table C, contains an explanatory note on Column (5). The 4 th paragraph of this explanatory note provides that for substances or mixtures with CMR properties the code “CMR” be added to the information. CMR properties are divided into Categories 1A, 1B and 2. It is not clear whether the code CMR should also be added in Column (5) for substances and mixtures of CMR Category 2.
Action to be taken:	Discussion within the ADN Safety Committee
Related documents:	None

¹ Distributed in German by the Central Commission for the Navigation of the Rhine under the symbol CCNR-ZKR/ADN/WP.15/AC.2/2016/36.

² In accordance with the programme of work of the Inland Transport Committee for 2016–2017 (ECE/TRANS/2016/28/Add.1 (9.3.)).

I. Introduction

1. The discussion was triggered by no. 1 of multilateral agreement ADN/M 005 in accordance with which, in the absence of a CMR property, UN 3082 (heavy heating oil) was permitted to be carried in open type N tank vessels until 31 December 2014. Here, it was assumed that the CMR property of a substance or a mixture entailed the requirement of a closed cargo tank.
2. According to information from the petroleum industry, it was assumed that there was no heavy heating oil to be assigned to UN number 3082 without CMR properties on the market. For this reason, the above agreement was not renewed.
3. There are various Material Safety Data Sheets available on the internet for heavy heating oil in which partly CMR Category 1B and partly Category 2 is given.
4. In accordance with GHS, the CMR properties of a substance or a mixture are divided into three categories:
 - Category 1A: Known to have CMR potential for humans
 - Category 1B: There is sufficient evidence that indicates CMR properties
 - Category 2: Substances suspected to have CMR properties; there is some evidence but it is not sufficiently convincing
5. In accordance with the flowchart in 3.2.3.3 of ADN, a “*closed type N vessel*” is only required for substances with CMR properties of Category 1A or 1B. (3rd box).
6. Section 3.2.4 of ADN (Modalities for the application of section 1.5.2 on special authorizations concerning transport in tank vessels) contains sub-section 3.2.4.2 (Application form for special authorizations under section 1.5.2). Under no. 4 (Physiological hazards) in that sub-section, information on the following is requested, among other things:
“CMR properties according to Categories 1A and 1B of chapters 3.5, 3.6 and 3.7 of GHS.”.
7. The explanatory note on Column (5) (Dangers) in sub-section 3.2.3.1 of ADN does not specify which CMR property categories should result in the code “CMR” being added.

II. Interpretation issue

8. The regulations mentioned under nos. 2 and 3 above suggest that, within ADN as a whole and thus also with regard to the information in Table C, only Categories 1A and 1B are of interest as regards the CMR properties of a substance or a mixture.
9. Germany would like to ask the Safety Committee to discuss this issue and decide on the correct interpretation of sub-section 3.2.3.1 of ADN.

III. Preliminary conclusions

10. Substances or mixtures to which the code “CMR” has been added in Column (5) require either cargo tank design “1 pressure cargo tank” or “2 closed cargo tank”, or this decision has to be taken in keeping with the flowchart in sub-section 3.2.3.2 of ADN.
11. There is only one substance with the code CMR in Column (5) for which cargo tank design “3 open cargo tanks with flame arresters” is sufficient:

UN 3256 ELEVATED TEMPERATURE LIQUID, FLAMMABLE, N.O.S., with flash-point above 60 °C, at or above its flash-point

12. On the other hand, a *pressure cargo tank* or a *closed cargo tank* may also be required for a substance or mixture **without** a CMR hazard and **without** an environmental hazard (N1 – N3):

(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)
<i>UN number or substance identification number</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>
1088	ACETAL	3	F1	II	<u>3</u>	N	<u>2</u>
1090	ACETONE	3	F1	II	<u>3</u>	N	<u>2</u>
1106	AMYLAMINE (n-AMYLAMINE)	3	FC	II	<u>3+8</u>	C	<u>2</u>
1107	AMYL CHLORIDES (1-CHLOROPENTANE)	3	F1	II	<u>3</u>	C	<u>2</u>
1107	AMYL CHLORIDES (1-CHLORO-3-METHYLBUTANE)	3	F1	II	<u>3</u>	C	<u>2</u>
1107	AMYL CHLORIDES (2-CHLORO-2-METHYLBUTANE)	3	F1	II	<u>3</u>	C	<u>2</u>
1107	AMYL CHLORIDE (1-CHLORO-2,2-DIMETHYLPROPANE)	3	F1	II	<u>3</u>	C	<u>2</u>
1120	BUTANOLS (tert-BUTYLALCOHOL)	3	F1	II	<u>3</u>	N	<u>2</u>
1123	BUTYL ACETATES (sec-BUTYLACETATE)	3	F1	II	<u>3</u>	N	<u>2</u>
1127	CHLOROBUTANES (1-CHLOROBUTANE)	3	F1	II	<u>3</u>	C	<u>2</u>
1127	CHLOROBUTANES (2-CHLOROBUTANE)	3	F1	II	<u>3</u>	C	<u>2</u>
1127	CHLOROBUTANES (1-CHLORO-2-METHYLPROPANE)	3	F1	II	<u>3</u>	C	<u>2</u>
1127	CHLOROBUTANES (2-CHLORO-2-METHYLPROPANE)	3	F1	II	<u>3</u>	C	<u>2</u>
1165	DIOXANE	3	F1	II	<u>3</u>	N	<u>2</u>
1170	ETHANOL (ETHYL ALCOHOL) or ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION), aqueous solution with more than 70 % alcohol by volume	3	F1	II	<u>3</u>	N	<u>2</u>
1173	ETHYL ACETATE	3	F1	II	<u>3</u>	N	<u>2</u>
1193	ETHYL METHYL KETONE or METHYL ETHYL KETONE	3	F1	II	<u>3</u>	N	<u>2</u>

(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)
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1199	FURALDEHYDES (a-FURALDEHYDE) or FURFURALDEHYDES (a-FURFURALDEHYDE)	6.1	TF 1	II	<u>6.1+3</u>	C	<u>2</u>
1219	ISOPROPANOL or ISOPROPYL ALCOHOL	3	F1	II	<u>3</u>	N	<u>2</u>
1220	ISOPROPYLE ACETATE	3	F1	II	<u>3</u>	N	<u>2</u>
1230	METHANOL	3	FT 1	II	<u>3+6.1</u>	N	<u>2</u>
1231	METHYL ACETATE	3	F1	II	<u>3</u>	N	<u>2</u>
1244	METHYLHYDRAZINE	6.1	TF C	I	<u>6.1+3+8</u>	C	<u>2</u>
1245	METHYL ISOBUTYL KETONE	3	F1	II	<u>3</u>	N	<u>2</u>
1274	n-PROPANOL or n-PROPYL ALCOHOL	3	F1	II	<u>3</u>	N	<u>2</u>
1277	PROPYLAMINE (1-aminopropane)	3	FC	II	<u>3+8</u>	C	<u>2</u>
1278	1-CHLOROPROPANE (propyl chloride)	3	F1	II	<u>3</u>	C	<u>2</u>
1545	ALLYL ISOTHIOCYANATE, STABILIZED	6.1	TF 1	II	<u>6.1+3+ins</u> <u>1</u>	C	<u>2</u>
1593	DICHLOROMETHANE (methyl chloride)	6.1	T1	III	<u>6.1</u>	C	<u>2</u>
1648	ACETONITRILE (methyl cyanide)	3	F1	II	<u>3</u>	N	<u>2</u>
1715	ACETIC ANHYDRIDE	8	CF 1	II	<u>8+3</u>	N	<u>2</u>
1717	ACETYL CHLORIDE	3	FC	II	<u>3+8</u>	C	<u>2</u>
1789	HYDROCHLORIC ACID	8	C1	II	<u>8</u>	N	<u>2</u>
1831	SULPHURIC ACID, FUMING	8	CT 1	I	<u>8+6.1</u>	C	<u>2</u>
1922	PYRROLIDINE	3	FC	II	<u>3+8</u>	C	<u>2</u>
1987	ALCOHOLS, N.O.S. (tert-BUTANOL 90 % (MASS)/METHANOL 10 % (MASS) MIXTURE)	3	F1	II	<u>3</u>	N	<u>2</u>

(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)
UN number or substance identification number	Name and description	Class	Classification code	Packing group	Dangers	Type of tank vessel	Carriage tank design
2014	HYDROGEN PEROXIDE, AQUEOUS SOLUTION with not less than 20 % but not more than 60 % hydrogen peroxide (stabilized as necessary)	5.1	OC 1	II	<u>5.1+8+ins</u> <u>1</u>	C	<u>2</u>
2022	CRESYLIC ACID	6.1	TC 1	II	<u>6.1+8+3+</u> <u>S</u>	C	<u>2</u>
2056	TETRAHYDROFURAN	3	F1	II	<u>3</u>	N	<u>2</u>
2205	ADIPONITRILE	6.1	T1	III	<u>6.1</u>	C	<u>2</u>
2206	ISOCYANATES, TOXIC, N.O.S. (4-CHLOROPHENYL ISOCYANATE)	6.1	T1	II	<u>6.1+S</u>	C	<u>2</u>
2247	n-DECANE	3	F1	III	<u>3+F</u>	C	<u>2</u>
2263	DIMETHYLCYCLOHEXANES (cis-1,4-DIMETHYLCYCLOHEXANE)	3	F1	II	<u>3</u>	C	<u>2</u>
2263	DIMETHYLCYCLOHEXANES (trans-1,4-DIMETHYLCYCLOHEXANE)	3	F1	II	<u>3</u>	C	<u>2</u>
2266	DIMETHYL-N-PROPYLAMINE	3	FC	II	<u>3+8</u>	C	<u>2</u>
2311	PHENETIDINES	6.1	T1	III	<u>6.1</u>	C	<u>2</u>
2333	ALLYL ACETATE	3	FT 1	II	<u>3+6.1</u>	C	<u>2</u>
2350	BUTYL METHYL ETHER	3	F1	II	<u>3</u>	N	<u>2</u>
2356	2-CHLOROPROPANE	3	F1	I	<u>3</u>	C	<u>2</u>
2381	DIMETHYL DISULPHIDE	3	FT 1	II	<u>3+6.1</u>	C	<u>2</u>
2397	3-METHYLBUTAN-2-ONE	3	F1	II	<u>3</u>	N	<u>2</u>
2398	METHYL tert-BUTYL ETHER	3	F1	II	<u>3</u>	N	<u>2</u>
2404	PROPIONITRILE	3	FT 1	II	<u>3+6.1</u>	C	<u>2</u>
2485	n-BUTYL ISOCYANATE	6.1	TF 1	I	<u>6.1+3</u>	C	<u>2</u>
2486	ISOBUTYL ISOCYANATE	6.1	TF 1	I	<u>6.1+3</u>	C	<u>2</u>
2487	PHENYL ISOCYANATE	6.1	TF 1	I	<u>6.1+3</u>	C	<u>2</u>

(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)
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2490	DICHLOROISOPROPYL ETHER	6.1	T1	II	<u>6.1</u>	C	<u>2</u>
2518	1,5,9-CYCLODODECATRIENE	6.1	T1	III	<u>6.1+F</u>	C	<u>2</u>
2527	ISOBUTYL ACRYLATE, STABILIZED	3	F1	III	<u>3+inst.</u>	C	<u>2</u>
2615	ETHYL PROPYL ETHER	3	F1	II	<u>3</u>	N	<u>2</u>
2683	AMMONIUM SULPHIDE SOLUTION	8	CF T	II	<u>8+3+6.1</u>	C	<u>2</u>
2754	N-ETHYL TOLUIDINES (N-EHTYL-o-TOLUIDINE)	6.1	T1	II	<u>6.1+F</u>	C	<u>2</u>
2754	N-ETHYL TOLUIDINES (N-EHTYL-m-TOLUIDINE)	6.1	T1	II	<u>6.1+F</u>	C	<u>2</u>
2754	N-ETHYL TOLUIDINES (N-EHTYL-o-TOLUIDINE and N-EHTYL-m-TOLUIDINE MIXTURES)	6.1	T1	II	<u>6.1+F</u>	C	<u>2</u>
2754	N-ETHYL TOLUIDINES (N-EHTYL-p-TOLUIDINE)	6.1	T1	II	<u>6.1+F</u>	C	<u>2</u>
2785	4-THIAPENTANAL (3-METHYLMERCAPTOPROPIONALDEHYDE)	6.1	T1	III	<u>6.1</u>	C	<u>2</u>
2789	ACETIC ACID, GLACIAL or ACETIC ACID SOLUTION, more than 80% acid, by mass	8	CF 1	II	<u>8+3</u>	N	<u>2</u>
2790	ACETIC ACID SOLUTION, not less than 50% but not more than 80% acid, by mass	8	C3	II	<u>8</u>	N	<u>2</u>
2790	ACETIC ACID SOLUTION, more than 10% and less than 50% acid, by mass	8	C3	III	<u>8</u>	N	<u>2</u>
2811	TOXIC SOLID, ORGANIC, N.O.S. (1,2,3-TRICHLOROBENZENE, MOLTEN)	6.1	T2	III	<u>6.1+S</u>	C	<u>2</u>
2811	TOXIC SOLID, ORGANIC, N.O.S. (1,2,3-TRICHLOROBENZENE, MOLTEN)	6.1	T2	III	<u>6.1+S</u>	C	<u>2</u>
2811	TOXIC SOLID, ORGANIC, N.O.S. (1,3,5-TRICHLOROBENZENE, MOLTEN)	6.1	T2	III	<u>6.1+S</u>	C	<u>2</u>
2811	TOXIC SOLID, ORGANIC, N.O.S. (1,3,5-TRICHLOROBENZENE, MOLTEN)	6.1	T2	III	<u>6.1+S</u>	C	<u>2</u>

(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)
<i>UN number or substance identification number</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>
2920	CORROSIVE LIQUID, FLAMMABLE, N.O.S. (AQUEOUS SOLUTION OF HEXADECYLTRIMETHYLAMMONIUM CHLORIDE (50%) AND ETHANOL (35%))	8	CF 1	II	<u>8+3+F</u>	N	<u>2</u>
2924	FLAMMABLE LIQUID, CORROSIVE, N.O.S. (AQUEOUS SOLUTION OF DIAKYL-(C ₈ -C ₁₈)-DIMETHYLAMMONIUM CHLORIDE AND 2-PROPANOL)	3	FC	II	<u>3+8+F</u>	C	<u>2</u>
2935	ETHYL-2-CHLORO-PROPIONATE	3	F1	III	<u>3</u>	C	<u>2</u>
2947	ISOPROPYL CHLOROACETATE	3	F1	III	<u>3</u>	C	<u>2</u>
2966	THIOGLYCOL	6.1	T1	II	<u>6.1</u>	C	<u>2</u>
2984	HYDROGEN PEROXIDE, AQUEOUS SOLUTION with not less than 8%; but less than 20% hydrogen peroxide (stabilized as necessary)	5.1	O1	III	<u>5.1+inst.</u>	C	<u>2</u>
3264	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (AQUEOUS SOLUTION OF PHOSPHORIC ACID AND CITRIC ACID)	8	C1	I	<u>8</u>	N	<u>2</u>
3276	NITRILES, TOXIC, LIQUID, N.O.S. (2-METHYLGLUTARONITRILE)	6.1	T1	II	<u>6.1</u>	C	<u>2</u>
3412	FORMIC ACID with not less than 5% but not more than 10% acid by mass	8	C3	III	<u>8</u>	N	<u>2</u>
3426	ACRYLAMIDE SOLUTION	6.1	T1	III	<u>6.1</u>	C	<u>2</u>
3429	CHLOROTOLUIDINES, LIQUID	6.1	T1	III	<u>6.1+S</u>	C	<u>2</u>
9004	DIPHENYLMETHANE-4,4'-DIISOCYANATE	9			<u>9+S</u>	N	<u>2</u>

13. Thus, contrary to earlier assumptions, there is no apparent unambiguous single “CMR” criterion on which the requirement of a closed cargo tank can be based.

14. As a consequence of requiring a closed cargo tank, it is necessary to return ashore the gas/air mixtures during loading operations in accordance with paragraph 7.2.4.25.5 of ADN. Therefore, besides the CMR hazards discussed in connection with proposal ECE/TRANS/WP.15/AC.2/2016/26 - (FuelsEurope), other reasons could make it necessary to return ashore the gas/air mixture. Thus, it should be examined in more detail what reasons, other than CMR, there were for requiring a closed cargo tank and whether these reasons apply for UN 3082 (heavy heating oil).