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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
Proposed amendments to the Regulations annexed to ADN: Other proposals

Assignment of subgroups in explosion group II B

Transmitted by the Central Commission for the Navigation of the Rhine (CCNR)[1]

Introduction

1. At the request of the informal working group on explosion protection on tank vessels, the informal working group on substances was invited to address the question of subgroups in explosion group II B and the assignment of subgroups II B1, II B2 and II B3 to the various entries in Table C.

2. Given the range of explosion group II B (0.5 mm ⩽ maximum experimental safe gap ⩽ 0.9 mm), subgroups II B3, II B2 and II B1 shall apply for self-contained systems (ISO 16852):

II B: 0.5 mm ⩽ NSW ⩽ 0.9 mm

II B3: 0.65 mm ⩽ NSW ⩽ 0.9 mm

II B2: 0.75 mm ⩽ NSW ⩽ 0.9 mm

II B1: 0.85 mm ⩽ NSW ⩽ 0.9 mm

Explosion group II B subgroups apply exclusively to self-contained protection systems (flame arresters, pressure/vacuum relief valves with integrated backfire-prevention device, and high velocity vent valves).

[1] Distributed in German by the Central Commission for the Navigation of the Rhine under the symbol CCNR-ZKR/ADN/WP.15/AC.2/2016/4.

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3. Data for this purpose have been made available by the *Physikalisch-Technischen Bundesanstalt (PTB), Braunschweig, Germany*. The data includes:

- Measured values for the subdivision of explosion group II B;
- Estimates for the subdivision of explosion group II B;
- Estimates for reclassification from explosion group II B to explosion group II A.

4. Having due regard for the general conditions set forth below, explosion group II B subgroups could be used for the selection of self-contained protection systems (flame arresters, pressure/vacuum relief valves with integrated backfire-prevention device, and high velocity vent valves).

(a) Where self-contained protection systems for explosion group II B are in place, products in explosion group II A, including subgroups II B3, II B2 and II B1, may be transported.

(b) Where self-contained protection systems for explosion group II B3 are in place, products in explosion subgroups II B3, II B2 and II B1, or in explosion group II A, may be transported.

(c) Where self-contained protection systems for explosion group II B2 are in place, products in explosion subgroups II B2 and II B1, or in explosion group II A, may be transported.

(d) Where self-contained protection systems for explosion group II B1 are in place, products in explosion subgroup II B1 or in explosion group II A may be transported.

5. Given that the explosion subgroup may be applied only to self-contained protection systems (flame arresters, pressure/vacuum relief valves with integrated backfire-prevention device, and high velocity vent valves), the indications concerning the explosion subgroup must be recorded in column (16) between brackets in addition to the indications concerning the explosion group.

6. Following the consultations, the following changes to Table C, column (16), are proposed:

(a) “(II B3)” to be added to the following entries:

1038 ETHYLENE, REFRIGERATED LIQUID

1040 ETHYLENE OXIDE WITH NITROGEN up to a total pressure of 1 MPa (10 bar) at 50 °C

1092 ACROLEIN, STABILIZED

1098 ALLYL ALCOHOL

1165 DIOXANNE

2023 EPICHLOROHYDRIN

(b) “(II B2)” to be added to the following entries:

1033 DIMETHYL ETHER

1093 ACRYLONITRILE, STABILIZED

1120 BUTANOLS (n- BUTYL ALCOHOL)

1143 CROTONALDEHYDE or CROTONALDEHYDE, STABILIZED

1153 ETHYLENE GLYCOL DIETHYL ETHER

1171 ETHYLENE GLYCOL MONOETHYL ETHER

1218 ISOPRENE, STABILIZED

2608 NITROPROPANES

(c) "(II B2[4])" to be added to the following entries:

1010 1,3-BUTADIENE, STABILIZED

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 (contains less than 0.1% 1.3-butadiene)

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)

(d) "(II B1)" to be added to the following entries:

1155 DIETHYL ETHER

1170 ETHANOL (ETHYL ALCOHOL) or ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION), aqueous solution with more than 70 % alcohol by volume

1199 FURALDEHYDES (a-FURALDEHYDE) or FURFURALDEHYDES (a-FURFURYLALDEHYDE)

1662 NITROBENZENE

1917 ETHYL ACRYLATE, STABILIZED

1919 METHYL ACRYLATE, STABILIZED

2056 TETRAHYDROFURAN

2218 ACRYLIC ACID, STABILIZED

2278 n-HEPTENE

2303 ISOPROPENYLBENZENE

2348 BUTYL ACRYLATES, STABILIZED (n-BUTYL ACRYLATE, STABILIZED)

3092 1-METHOXY-2-PROPANOL

(e) "(II B1[4])" to be added to the following entry:

1170 ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION), aqueous solution with more than 24 % and not more than 70 % alcohol by volume

(f) "(II B1)" to be replaced by "II A[7])" for the following entries:

2458 HEXADIENES

2491 ETHANOLAMINE or ETHANOLAMINE SOLUTION

2811 TOXIC SOLID, ORGANIC, N.O.S. (1,2,3-TRICHLOROBENZENE, MOLTEN)

2811 TOXIC SOLID, ORGANIC, N.O.S. (1,3,5-TRICHLOROBENZENE, MOLTEN)

7. In addition, the following remark is proposed for column (16) in 3.2.3.1 Explanations concerning Table C:

“Column 16 Explosion group

Contains the explosion group of the substance.

Values between square brackets indicate the explosion group II B subgroups to be used in selecting the relevant self-contained protection systems (flame arresters, pressure/vacuum relief valves with integrated backfire-prevention device, and high velocity vent valves).

NOTE:

Where self-contained protection systems for explosion group II B are in place, products in explosion group II A or II B, including subgroups II B3, II B2 and II B1, may be transported.

Where self-contained protection systems for explosion group II B3 are in place, products in explosion subgroups II B3, II B2 and II B1, or in explosion group II A, may be transported.

Where self-contained protection systems for explosion group II B2 are in place, products in explosion subgroups II B2 and II B1, or in explosion group II A, may be transported.

Where self-contained protection systems for explosion group II B1 are in place, products in explosion subgroup II B1 or in explosion group II A may be transported.”