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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)

##### Thirty-first session

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Item 4 (b) of the provisional agenda

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

### **Fire-fighting systems using a dry aerosol-forming extinguishing agent ES-TRIN and ADN amendments**

**Transmitted by the governments of Belgium, the Netherlands and  
Switzerland<sup>\*,\*\*</sup>**

## **I. Reminder of the context**

1. The work programme of the European Committee for drawing up common standards in the field of inland navigation (CESNI) envisages the following task: “Development of technical requirements for systems using a dry aerosol forming SBC extinguishing agent, on the basis of recommendations adopted” (2016-8 ; Priority II). From 2011 to 2017, in accordance with Article 2.19 of the Rhine Vessel Inspection Regulations (RVIR), the Central Commission for the Navigation of the Rhine (CCNR) issued 9 recommendations<sup>1</sup> for this kind of installations.

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\* Distributed in German by the Central Commission for the Navigation of the Rhine under the symbol CCNR-ZKR/ADN/WP.15/AC.2/2017/45.

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

<sup>1</sup> Corylophida, Oostenwind, Donau, Warber, MS Beaufort, MS Vivadero R, Jan Smit, Sirocco, Abel Tasman

2. During its January 2017 session,<sup>2</sup> the Safety Committee agreed in principle to allow dry aerosols as extinguishing agents in 9.1.0.40.2.1 and 9.3.X.40.2.1 (see proposal in informal document INF.23 of the thirtieth session), provided that European Directive 2014/90/EU was cited only as an example. It was, however, noted that the extinguishing agents in question were not included in the ES-TRIN and there were also some differences between that standard and the provisions of ADN on the use of other extinguishing agents, such as CO<sub>2</sub>.

## II. Objectives

3. This communication aims to propose simultaneous amendments to the ES-TRIN and ADN concerning fire-fighting systems using a dry aerosol-forming extinguishing agent. Based on a comparative analysis, this communication also aims to propose improvements to the consistency of the other provisions of the ES-TRIN and ADN regarding fire-fighting systems.

4. This communication is being sent simultaneously to the ADN's Safety Committee and to the CESNI/PT Working Group.

## III. Comparative analysis of ADN and ES-TRIN provisions

5. The conclusions of the comparative analysis (see details in the annex) are as follows:

(a) With effect from its 2017 edition, ES-TRIN contains provisions for fire-fighting systems using water as the extinguishing agent (see article 13.05 (14) of the ES-TRIN). These provisions do not feature in the ADN. Pending a decision by the Safety Committee, section 9.1.0.40.2.14 (by analogy 9.3.X.40.2.14) of the ADN, could be designated as "Reserved". The list of extinguishing agents in 9.1.0.40.2.1 (by analogy 9.3.X.40.2.1) could also be amended;

(b) To ensure a consistent structure between the ES-TRIN and the ADN, the provisions on fire-fighting systems using a dry aerosol-forming extinguishing agent could be incorporated into article 13.05(15) of the ES-TRIN and section 9.1.0.40.2.15 (by analogy 9.3.X.40.2.15) of the ADN;

(c) To remove the discrepancies between the different language versions of the ADN and to improve its consistency with ES-TRIN, an amendment of (f) in section 9.1.0.40.2.2 (by analogy with 9.3.X.40.2.2) of the ADN is desirable;

(d) To improve the consistency with the ADN (9.1.0.40.2.7), an amendment of article 13.05(7) could be examined by the CESNI Working Group (see CESNI/PT (16)m 51, item 3.3).

6. In light of the aforementioned conclusions, proposed amendments of the ES-TRIN and the ADN are put forward in part V of this communication.

## IV. Preliminary explanations of the amendments

7. The nine recommendations delivered by the CCNR refer to type approval in accordance with the European directive on Marine equipment (Directive 2014/90/EU, which replaced Directive 96/98/EC). This reference had been proposed in the informal

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<sup>2</sup> See report ECE/TRANS/WP.15/AC.2/62, paragraphs 52 to 54.

document INF.23 of the thirtieth session by Belgium and the Netherlands. The ADN Safety Committee wanted European directive 2014/90/EU to be mentioned only as an example.

8. In practice, the systems typically come with a type approval certificate as per the IMO Circular MSC/Circ.1270. Moreover, references to IMO publications may be found in ES-TRIN (for example article 13.05(14) and in ADN (9.2.0.94.4).

9. Consequently it would seem appropriate to refer to the IMO Circular MSC/Circ. 1270 for the type approval of fire-fighting systems using a dry aerosol-forming extinguishing agent. This solution is reflected in the proposed amendment in Part V of this communication.

## V. Proposed amendments

### Amendment of ADN

9.1.0.40.2.1 Add a new subparagraph (e) and a new subparagraph (f) to read as follows:

**“(e) (Reserved);**

**(f) K<sub>2</sub>CO<sub>3</sub> forming dry aerosol”.**

9.1.0.40.2.2 f) Amend to read as follows:

**“(f) Protected spaces shall have a facility for extracting the extinguishing agent and the combustion gases. Such facilities shall be capable of being operated from positions outside the protected rooms and which must not be made inaccessible by a fire within such spaces. If there are permanently installed extractors, it shall not be possible for these to be switched on while the fire is being extinguished”**

9.1.0.40.2 Add a new 9.1.0.40.2.14 to read as follows:

**“9.1.0.40.2.14 (Reserved)”**

9.1.0.40.2 Add a new 9.1.0.40.2.15 to read as follows:

**“9.1.0.40.2.15 Fire-fighting systems using K<sub>2</sub>CO<sub>3</sub> forming dry aerosol as the extinguishing agent**

**In addition to the requirements laid down in 9.1.0.40.2.1 to 9.1.0.40.2.3, 9.1.0.40.2.5, 9.1.0.40.2.6, and 9.1.0.40.2.9, fire-fighting systems using K<sub>2</sub>CO<sub>3</sub> forming dry aerosol as the extinguishing agent shall comply with the following provisions:**

- (a) The fire-fighting system shall have a type-approval pursuant to MSC/Circ. 1270;<sup>3</sup>**
- (b) Each room shall be provided with its own firefighting system;**
- (c) The dry aerosol-forming extinguisher is stored in specially provided unpressurised tanks in the room to be protected. These tanks shall be fitted in such a way that the extinguishing agent is dispensed evenly. In particular the extinguishing agent shall also work underneath the deck plates;**

<sup>3</sup> International Maritime Organization Circular MSC/Circ. 1270 — Revised Guidelines for the approval of fixed aerosol fire-extinguishing systems equivalent to fixed gas extinguishing systems, as referred to in SOLAS 1974, for machinery spaces — adopted on 4 June 2008.

- (d) **The triggering of the fire-fighting system shall be carried out by means of an electrical control device as referred to in 9.1.0.40.2.15 (c). Each tank is separately connected with the triggering device;**
- (e) **The quantity of dry aerosol-forming extinguishing agent relative to the room to be protected shall be at least 120 g per m<sup>3</sup> of the gross volume of this room; and**
- (f) **The tanks containing extinguishing agent shall be replaced after 15 years. The emergency power supply batteries shall be replaced after no more than 6 years.”**

*Note:* Similar amendments are necessary in sections 9.3.X.40.2.X of the ADN.

## Annex

*Note:* Similar observations can be pointed out with section 9.3.X.40.2.X of the ADN.

<i>ADN 2017</i>	<i>ES-TRIN 2017</i>	<i>Comment</i>
9.1.0.40.2.1	13.05(1)	List of extinguishing agents for permanently installed firefighting systems for protecting engine rooms, boiler rooms and pump rooms.  Identical, except that ES-TRIN includes “water” as letter (e). (new in edition 2017) See also Article 13.05(14) of ES-TRIN.
9.1.0.40.2.2	13.05(2)	Ventilation, air intake.  Similar provisions.  However, in letter (f), ES-TRIN 2017 includes supplementary provisions as follows: “Protected rooms shall have a facility for extracting the extinguishing agent <b>and the combustion gases. Such facilities shall be capable of being operated from positions outside the protected rooms and which must not be made inaccessible by a fire within such spaces.</b> ”.  Moreover, some inconsistencies between the linguistic versions of ADN can be noticed (combustion gases).
9.1.0.40.2.3	13.05(3)	Fire alarm system. Similar provisions.
9.1.0.40.2.4	13.05(4)	Piping system Similar provisions.
9.1.0.40.2.5	13.05(5)	Triggering device Similar provisions, except that ES-TRIN provides the content of the symbol in Annex 4 and the lettering in 4 languages.
9.1.0.40.2.6	13.05(6)	Warning system Similar provisions, except that ES-TRIN provides the lettering in 4 languages.
9.1.0.40.2.7	13.05(7)	Pressure tanks, fittings and pressure pipes Similar provisions. However, in letter a), ADN 2017 refers to requirements of recognised classification societies. As reminder, the working group CESNI/PT was not in favour of similar amendment of ES-TRIN (see CESNI/PT (16) 15, CESNI/PT (16)m 24, item 4.3, CESNI/PT(16)m 51, item 3.3).
9.1.0.40.2.8	13.05(8)	Quantity of extinguishing agent Similar provisions.
9.1.0.40.2.9	13.05(9)	Installation, inspection and documentation Similar provisions In letter (a), ES-TRIN is more explicit regarding the maintenance, in particular of the condition of the spray nozzles. In letter (b), ES-TRIN allows the intervention of competent persons (instead of expert) for the regularly control (every 2 years).
9.1.0.40.2.10	13.05(10)	CO <sub>2</sub> fire-fighting systems Similar provisions.
9.1.0.40.2.11	13.05(11)	HFC-227ea — fire-fighting systems Similar provisions.

<i>ADN 2017</i>	<i>ES-TRIN 2017</i>	<i>Comment</i>
9.1.0.40.2.12	13.05(12)	IG-541 — fire-fighting systems Similar provisions.
9.1.0.40.2.13	13.05(13)	FK-5-1-12 — firefighting systems Similar provisions.
-	13.05(14)	Fire-fighting systems using water as the extinguishing agent Only in ES-TRIN 2017.

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