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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)****Forty-second session**

Geneva, 21-25 August 2023

Item 3(b) of the provisional agenda

**Implementation of the European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (ADN): special authorizations, derogations and equivalents****Request for a recommendation on the use of hydrogen fuel cells for the propulsion of the vessel "Rhenus Mannheim"****Transmitted by the Government of the Netherlands\*\*,\*\*****Introduction**

1. In light of the energy transition towards cleaner fuels, several vessels are now being build that use alternative fuels for their propulsion. One of these vessels is the Rhenus Mannheim, which will be outfitted with a hydrogen fuel system as part of a hybrid power train. The hydrogen will be stored in swappable 20 ft containers.
2. The Rhenus Mannheim is a motor vessel, carrying containers. It will be part of a container convoy.
3. It is expected that the Rhenus Mannheim will receive a derogation from the Central Commission for the Navigation of the Rhine (CCNR) coming June. This derogation will be communicated to the ADN Safety Committee in an informal document. Furthermore, the CCNR is working to expand Chapter 30 and Annex 8 of the European Standard laying down Technical Requirements for Inland Navigation vessels (ES-TRIN), with regulations on hydrogen fuel systems to allow for these kind of propulsion systems on a permanent basis.
4. As the use of hydrogen as a fuel is currently not allowed according to 7.1.3.31 and 9.1.0.31.1 of ADN, the Netherlands would like to request for a recommendation from the ADN Administrative Committee to issue a derogation for this vessel.

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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.2/2023/34

\*\* A/77/6 (Sect. 20), table 20.6.



5. To support this request the following documents are provided in English language in informal document INF.5 of the forty-second session:
- (a) Description of the Rhenus H2-System with Fuel Cell 800 kW (400kW) and 500 bar H2-Storage Tank Rev04 (see informal document INF.5, Annex I);
  - (b) Hazard Identification (HAZID) report by Lloyds Register (see informal document INF.5, Annex II); and
  - (c) General arrangement drawing (see informal document INF.3, Annex III).
6. The concept text for a derogation is provided in the annex to this document.

## **Justification and sustainable development goals**

7. The use of alternative fuels for the propulsion of inland navigation vessels is one of the steps to be taken in the general energy transition towards the use of sustainable energy. CCNR is planning on expanding Chapter 30 and Annex 8 of ES-TRIN to include hydrogen fuel systems. The ADN Safety Committee could decide to expand the current exception for the use of liquefied natural gas (LNG), to the other systems that are going to be included in the ES-TRIN. This derogation could provide the ADN Safety Committee with further information, which could help make that decision in the future.
8. The issuing of this recommendation is a step towards the regulation of these systems within ADN, as such this proposal could be linked to Sustainable Development Goals 7, Affordable and clean energy, to increase substantially the share of renewable energy in the global energy mix, and 13, Climate action.

## **Action to be taken**

9. The ADN Safety Committee is requested to consider the proposals and to advise the ADN Administrative Committee as it deems appropriate.

## **Annex**

### **Decision of the ADN Administrative Committee relating to the use of hydrogen fuel system on the pusher vessel Rhenus Mannheim (04814490)**

#### **Derogation No. X/2023 of 25 August 2023**

1. The competent authority of the Netherlands is authorised to issue an addition to the certificate of approval of the pusher Rhenus Mannheim (04814490) for the use of a hydrogen fuel system for propulsion.
2. Pursuant to paragraph 1.5.3.2 of the Regulations annexed to ADN, the above-mentioned vessel may deviate until 30 June 2028 from the requirements of paragraphs 7.1.3.31 and 9.1.0.31.1, fuel having a flashpoint above 55 °C. The vessel is equipped with a hydrogen fuel system.
3. The Administrative Committee decides that the use of this hydrogen fuel system is sufficiently safe if the conditions set by the Central Commission for the Navigation of the Rhine (CCNR) are met at all times.
4. The following condition shall also apply:  

All data related to the use of the hydrogen fuel system shall be collected by the carrier.  
The data shall be sent to the competent authority on request.

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