



Economic and Social Council

Distr.: General
14 June 2024

Original: English

Economic Commission for Europe

**Administrative Committee of the European Agreement
concerning the International Carriage of Dangerous Goods
by Inland Waterways (ADN)**

Thirty-second session

Geneva, 30 August 2024

Item 3 (b) of the provisional agenda

**Matters relating to the implementation of 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*

Summary

Related documents: ECE/TRANS/WP.15/AC.2/2024/33
Informal documents INF.7 and INF.16 of the forty-third session
of the ADN Safety Committee
ECE/TRANS/WP.15/AC.2/88 (Paragraphs 15-18)
ECE/TRANS/WP.15/AC.2/2023/34
Informal documents INF.5, INF.22 and INF.27 of the forty-
second session of the ADN Safety Committee
ECE/TRANS/WP.15/AC.2/86 (Paragraph 14)

Introduction

1. In light of the energy transition towards cleaner fuels, several vessels are now being build or rebuild 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 feet multiple element gas containers (MEGCs).
2. The Rhenus Mannheim is a motor vessel, carrying containers. It will be part of a container convoy.

* Distributed in German by the Central Commission for the Navigation of the Rhine under the symbol CCNR-ZKR/ADN/2024/6.



3. The Rhenus Mannheim has received recommendation 5/2023 from the CCNR. This recommendation was communicated to the ADN Safety Committee in informal document INF.22 of the forty-second session of the ADN Safety Committee. Furthermore, the working group on technical requirements of the CESNI (CESNI/PT) is working to expand the European Standard laying down Technical Requirements for Inland Navigation vessels (ES-TRIN) Chapter 30 and Annex 8, 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 according to 1.5.3.2 of ADN.

5. To supplement this request for a recommendation a document containing the relevant information has been submitted to the ADN Administrative Committee in informal document INF.5.

Discussion

6. During the forty-third session of the ADN Safety Committee this request was discussed on the basis of an updated document after questions were received after the presentation during the forty-second session. Additional questions were raised during the discussion. All interested parties were invited to submit their comments to the Dutch delegation, furthermore a digital meeting was organized to discuss these comments in depth on 2 May 2024.

7. During this meeting the wording of the derogation was discussed in depth, and adapted accordingly. Among others, it was discussed that the text of the derogation should be added to the certificate of approval, which is reflected in the new first paragraph of the recommendation. Also, the timing for the second evaluation report is adjusted so that the information from this report is available at the time that a discussion on regulating hydrogen fuel systems in the ADN is expected.

Justification and sustainable development goals

8. The use of alternative fuels for propulsion for inland navigation vessels is one of the steps to be taken in the general energy transition towards the use of sustainable energy. For non-dangerous goods work is being carried out to expand ES-TRIN Chapter 30 and Annex 8 to include hydrogen fuel systems. When the regulations for the use of hydrogen systems for non-dangerous goods are in place in the ES-TRIN, the ADN Safety Committee could decide to evaluate if the use of hydrogen systems for dangerous goods could be regulated in the ADN. This derogation could provide the ADN Safety Committee with further information, which could help make that decision in the future.

9. The issuing of this recommendation is a step towards the regulation of alternative fuel systems within ADN, as such this proposal could be linked to the United Nations Sustainable Development Goals: 7; *to increase substantially the share of renewable energy in the global energy mix*, and 13; *Climate action*.

Action to be taken

10. 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 dry cargo vessel Rhenus Mannheim I (ENI 04814490)

Derogation No. X/2024 of XX August 2024

1. The competent authority of the Netherlands is authorized to issue an addition to the trial certificate of approval of the motor vessel Rhenus Mannheim I (ENI 04814490) for use of a hydrogen fuel system.
2. Pursuant to paragraph 1.5.3.2 of the Regulations annexed to ADN, the above-mentioned vessel may, on a trial basis, deviate until 31 December 2028 from the requirements of paragraphs:
 - 7.1.3.31 , making use hydrogen as a fuel with a flash point below 55 degrees Celsius in a hydrogen propulsion system consisting of hydrogen fuel cells and hydrogen multiple element gas containers (MEGCs);
 - 9.1.0.31.1, making use hydrogen as a fuel with a flash point below 55 degrees Celsius in a hydrogen propulsion system consisting of hydrogen fuel cells and hydrogen multiple element gas containers (MEGCs).
3. The ADN Administrative Committee decides that the use of this hydrogen fuel system is sufficiently safe if the following conditions are met at all times:
 - The conditions as set in recommendation 5/2023 by the Central Commission for the Navigation of the Rhine (CCNR);
 - No containers carrying dangerous goods authorized by the annexed Regulations to ADN nor reefer containers may be placed in the first row aft of the hydrogen installation
4. All information on the use of the hydrogen propulsion system needs to be collected by the ship owner and kept for at least five years. This info will be submitted to the competent authority upon request.
5. The ship owner will submit an evaluation report to the competent authority at the following moments:
 - 6 months after the commissioning of the ship;
 - 2 years after the issue of this recommendation;
 - 5 years after the issue of this recommendation.

The competent authority will submit these evaluation reports to the UNECE secretariat for information of the ADN Administrative Committee.
6. These evaluation reports should at least contain the following information:
 - Failure and damage of the fuel cell system;
 - Leakage;
 - Bunkering information;
 - Repairs and alterations of the fuel cell system;
 - Operational data;
 - Incidents, including the interaction or possible interaction with dangerous goods.