



# Economic and Social Council

Distr.: General  
15 January 2024

Original: English

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## Economic Commission for Europe

### Inland Transport Committee

### Working Party on the Transport of Dangerous Goods

#### 115th session

Geneva, 2-5 April 2024

Item 5 (a) of the provisional agenda

**Proposals for amendments to annexes A and B of ADR:**

**Construction and approval of vehicles**

## Battery Electric Vehicles and Hydrogen Fuelled Vehicles

**Transmitted by the Government of the Netherlands on behalf of the informal working group on electrified vehicles\***

### I. Introduction

1. The proposals for amendment in document ECE/TRANS/WP.15/2023/14 were preliminary adopted with modifications. The amendments to ADR 2023 can be found in Annex III in the report ECE/TRANS/WP.15/264 of the 114<sup>th</sup> session of the Working Party.
2. The amendments contained a number of wordings that were kept in square brackets for further consideration at the 115<sup>th</sup> session. In section 1 of this document final proposals and justifications on how to deal with the wording in square brackets are given.
3. Further additional consequential amendments were found which are reproduced in section 2 of this document.
4. This document contains the proposals as available at the moment of the deadline for official documents. As development is still ongoing this document will be supplemented by a report of the informal working group on electrified vehicles and if necessary minor additions or adjustments.

### II. Proposals

5. Section 1: Text in square brackets in ECE/TRANS/WP.15/264, annex III

*Note: in the table below, "REESS" refers to "Rechargeable electrical energy storage system".*

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\* A/78/6 (Sect. 20), table 20.5.



<i>Reference</i>	<i>Text of annex III to ECE/TRANS/WP.15/264</i>	<i>Proposal and rationale</i>
1.6.5.26	Vehicles first registered (or which entered into service if registration is not mandatory) before [1 April 2026], approved as AT vehicle not in compliance with the provisions of 9.2.4.2 concerning fuel tanks may continue to be used.”	The date of 1 April 2026 is the standard period to allow for UN Regulation No. 105 to be updated and vehicles already under construction (e.g. fitting of tank) to be completed. It is proposed to delete the square brackets.
1.6.5.27	Vehicles first registered (or which entered into service if registration is not mandatory) before [1 April 2026], approved as AT vehicle not in compliance with the provisions of 9.2.4.4.2 concerning the evaluation of the REESS may continue to be used.”	The date of 1 April 2026 is the standard period to allow for UN Regulation No. 105 to be updated and vehicles already under construction (e.g. fitting of tank) to be completed. It is proposed to delete the square brackets.
9.2.1.1	In the row for 9.2.4.2 in the table: <ul style="list-style-type: none"> <li>• in the column for “AT”, add “X<sup>k</sup>” and in column “COMMENTS”, add “<sup>k</sup> Applicable to motor vehicles <u>“using other fuels than hydrogen.”</u> first registered after [31 March 2026]”.</li> </ul>	The date of latest application is in line with the traditionally used periods and in line with the transitional measures in 1.6.5.
9.2.1.1	In the row for 9.2.4.4.2 in the table: in the column for “AT”, add “X <sup>k</sup> ” and in column “COMMENTS”, add “ <sup>k</sup> Applicable to motor vehicles first registered after [31 March 2026]”.	The date of latest application is in line with the traditionally used periods and in line with the transitional measures in 1.6.5.
9.2.2.1	[In the first paragraph, after “ignition”, add “, fire”.]	It was felt that ignition already covered the development of a fire. It is proposed to delete “fire” and the square brackets.
9.2.4.2	(e) Fuel tanks and cylinders for hydrogen shall meet the relevant requirements of UN Regulation No. 134 <sup>9</sup> , as amended at least by the 02 series of amendments, or for liquid hydrogen containers the technical provisions of [Global Technical Regulation No.13 <sup>10</sup> , Phase 2, part 7].”	After checking the proper reference would be “ <i>Global Technical Regulation Amendment 1, part 7</i> ”. Part 7 is specific for the liquid hydrogen container.  It is proposed to amend the wording and delete the square brackets.
9.2.4.3.1	(c) UN Regulation No. 134 <sup>9</sup> for compressed hydrogen [and the technical provisions of Global Technical Regulation No.13 <sup>10</sup> ,	After checking the proper reference would be “ <i>Global Technical Regulation Amendment 1</i> ”. It is proposed to amend the

Reference	Text of annex III to ECE/TRANS/WP.15/264	Proposal and rationale
9.2.4.4.2	<p>Phase 2] for liquid hydrogen, as relevant.</p> <p>REESS of vehicles with an electric power train shall be designed and constructed taking into account a risk evaluation according to ISO 6469-1:2019/Amd 1:2022 to establish safety for normal operational conditions. [A review shall be carried out by a technical service (e.g. technical service for vehicle approvals according to UN Regulation No. 100<sup>1</sup>, as amended at least by the 03 series of amendments).]</p>	<p>wording and delete the square brackets.</p> <p>The purpose of the text in square brackets is that a an independent body with proper qualifications evaluates the work done by the manufacturer. However, if this should be the technical service for UN Regulation No. 105 or UN Regulation No. 100 was questioned.</p> <p>At the time of drafting this document no consensus was reached on this issue.</p> <p>It is proposed to keep in square brackets to be finalized at the 115th session of the Working Party.</p>
9.2.4.4.3	<p>REESS containing cells for which thermal propagation cannot be guaranteed to be contained within the REESS, measures shall be taken to <del>prevent</del> mitigate danger to the load by heating or ignition. [The design shall consider the need for facilitation of intervention by emergency services to mitigate effects of a thermal propagation.]”</p>	<p>It is proposed to replace “prevent” by “mitigate” which is a more appropriate in combination with “danger”.</p> <p>The intention of the text in square brackets was to design a vehicle in such a way to make it possible for emergency services to intervene in a fire extended outside the REESS. However, when a fire moved from the REESS to the whole vehicle the plan of attack of emergency services would not differ between an ICE truck or Electric one, it will from a safe distance. It was therefore deemed unnecessary for the vehicle to be designed in such a way as to allow for this intervention. It is also expected that fire brigades will develop techniques to intervene regardless of the design.</p> <p>It is proposed to delete the sentence in square brackets.</p>
9.2.4.5.2	<p>Hydrogen fuel cell vehicles shall comply with UN Regulation No. 134<sup>9</sup>, as amended at least by the 02 series of amendments. For vehicles using liquid hydrogen the technical requirements of the [Global Technical Regulation No.13<sup>10</sup>, Phase 2] applies.</p>	<p>After checking the proper reference would be “<i>Global Technical Regulation 13 Amendment 1</i>”. It is proposed to amend the wording and delete the square brackets.</p>

<i>Reference</i>	<i>Text of annex III to ECE/TRANS/WP.15/264</i>	<i>Proposal and rationale</i>
9.2.4.5.3	(b) at a deceleration of [3.25 m·s <sup>-2</sup> for 0.7 s];	The value is correct (see GRSG-126-02r1.pdf paragraph 5.3.1.1). It is proposed to delete the square brackets.
9.2.4	[After “LNG”, add “and liquid hydrogen”.]	Liquefied gas can be very cold and effect the load tank. LNG and liquid hydrogen will behave in the same way. It is proposed to add “and liquid hydrogen” and delete the square brackets.

## 6. Section 2: Consequential amendments

### **Chapter 9.2**

- 9.2.5.1 (current 9.2.4.8.1) Replace 9.2.4.8.2 to 9.2.4.8.6" by "9.2.5.2 to 9.2.5.6".
- 9.2.5.2 (current 9.2.4.8.2) Replace "9.2.4.3 and 9.2.4.5" by "9.2.4.2 and 9.2.4.3.2".
- 9.2.5.4 (current 9.2.4.8.4) In the first sentence, replace "9.2.4.8.3 (b) and (c)" by "9.2.5.3 (b) and (c)".

### **Chapter 9.3**

- 9.3.2.2 Replace "9.2.4.8.1, 9.2.4.8.2, 9.2.4.8.5 and 9.2.4.8.6" by: "9.2.5.1, 9.2.5.2, 9.2.5.5 and 9.2.5.6".

### **Chapter 9.7**

- 9.7.7.1 In the first paragraph, replace "9.2.4.8.1, 9.2.4.8.2, 9.2.4.8.5" by: "9.2.5.1, 9.2.5.2, 9.2.5.5".
- In the second paragraph, replace "9.2.4.8.3 and 9.2.4.8.4" by: "9.2.5.3 and 9.2.5.4".

### **Chapter 9.8**

- 9.8.6.1 Replace "9.2.4.8.1, 9.2.4.8.2, 9.2.4.8.5, 9.2.4.8.6" by: "9.2.5.1, 9.2.5.2, 9.2.5.5, 9.2.5.6".