



Economic Commission for Europe**Inland Transport Committee****World Forum for Harmonization of Vehicle Regulations****Working Party on Pollution and Energy****Eighty-seventh session**

Geneva, 10-13 January 2023

Item 5. of the provisional agenda

UN Regulations Nos. 24 (Visible pollutants, measurement of power of C.I. engines (Diesel smoke)), 85 (Measurement of the net power), 115 (LPG and CNG retrofit systems), 133 (Recyclability of motor vehicles) and 143 (Heavy Duty Dual-Fuel Engine Retrofit Systems (HDDF-ERS))

**Proposal for a new Supplement to UN Regulation No. 85
(Measurement of the net power)****Submitted by the expert from the International Organization of Motor
Vehicle Manufacturers***

The text reproduced below was prepared by the expert from the International Organization of Motor Vehicle Manufacturers (OICA). This document aims at permitting the use of hydrogen (H₂) as fuel for type approval of heavy-duty vehicles and to explicitly permit the usage of the reference fuel required for emission testing when the manufacturer applies for UN Regulations Nos. 24 and / or 49 type approval at same time. The modifications to the current text of the Regulation are marked in bold for new or strikethrough for deleted characters.

* In accordance with the programme of work of the Inland Transport Committee for 2023 as outlined in proposed programme budget for 2023 (A/77/6 (Sect. 20), table 20.6), the World Forum will develop, harmonize and update UN Regulations in order to enhance the performance of vehicles. The present document is submitted in conformity with that mandate.

I. Proposal

Paragraph 5.2.3.4., amend to read:

"5.2.3.4. For compression ignition engines and dual-fuel engines:

The fuel used shall be the one available on the market. In any case of dispute, the fuel shall be the reference fuel defined by CEC for compression ignition engines, in CEC document RF-03-A-84.

In the case that testing for emission of gaseous and particulate pollutants [according to UN Regulations Nos. 49 and/or 24] is conducted at the same time as testing to this Regulation, at the request of the manufacturer the fuel for testing emission of gaseous and particulate pollutants may be used for testing to this Regulation."

Insert a new paragraph 5.2.3.7., to read:

"5.2.3.7. **For positive ignition engines, compression ignition engines and dual-fuel engines fuelled with hydrogen**

The fuel used shall be the one available on the market. In any case of dispute, the fuel shall be the fuel specified in ISO14687:2019 as grade D."

II. Justification

1. The use of test fuels is permitted for certification testing of gaseous and particulate pollutants and power/smoke testing in Europe. However, other countries that have adopted and referenced UN Regulation No. 85 may not allow this. In this case, manufacturers have to prepare fuels with different characteristics, which is costly and requires a long time due to the current inconsistent situation.

2. We believe that the use of test fuels for gaseous and particulate pollutant measurement tests should be a priority as a precondition for the introduction of more stringent emission levels.

3. Hydrogen fuelled vehicles are covered in UN Regulation No. 83, but hydrogen is not yet covered in UN Regulation No. 49 and UN Regulation No. 85.

4. Hydrogen fuelled engines could be one complementary option to reduce CO₂ emission of future heavy-duty vehicles

5. Thus, hydrogen fuel should be integrated in UN Regulation No. 49 and UN Regulation No. 85 for better alignment with UN Regulation No. 83
