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Inland Transport Committee

World Forum for Harmonization of Vehicle Regulations

190th session
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Item 4.7.3. of the provisional agenda
1958 Agreement:
Consideration of draft amendments to existing
UN Regulations submitted by GRPE

Proposal for Supplement 8 to the 06 series of amendments to UN Regulation No. 49 (Emissions of compression ignition and positive ignition (LPG and CNG) engines)

Submitted by the Working Party on Pollution and Energy *

The text reproduced below was adopted by the Working Party on Pollution and Energy (GRPE) at its eighty-seventh session (ECE/TRANS/WP.29/GRPE/87, para. 49). It is based on ECE/TRANS/WP.29/GRPE/2023/5. It is submitted to the World Forum for Harmonization of Vehicle Regulations (WP.29) and to the Administrative Committee (AC.1) for consideration at their June 2023 sessions.

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* 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), para 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.

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Annex 4

Paragraph 8.1.3., amend to read:

"8.1.3.   Diluent

$$k_{w,d} = (1 - k_{w3}) \times 1{,}008 \tag{21}$$

With

$$k_{w3} = \frac{1{,}608 \times H_d}{1000 + (1{,}608 \times H_d)} \tag{22}$$

Where:

H_d is the diluent humidity, g water per kg dry air"

Paragraph 8.6.3., amend to read:

"8.6.3.   Calculation of the specific emissions

The specific emissions e_{gas} or e_{PM} (g/kWh) shall be calculated for each individual component in the following ways depending on the type of test cycle.

For the WHSC, hot WHTC, or cold WHTC, the following equation shall be applied:

$$e = \frac{m}{W_{act}} \tag{69}$$

Where:

m is the mass emission of the component, g/test

W_{act} is the actual cycle work as determined according to paragraph 7.8.6., kWh

For the WHTC, the final test result shall be a weighted average from cold start test and hot start test according to the following equation:

$$e = \frac{(0{,}14 \times m_{cold}) + (0{,}86 \times m_{hot})}{(0{,}14 \times W_{act,cold}) + (0{,}86 \times W_{act,hot})} \tag{70}$$

Where:

m_{cold} is the mass emission of the component on the cold start test, g/test

m_{hot} is the mass emission of the component on the hot start test, g/test

$W_{act,cold}$ is the actual cycle work on the cold start test, kWh

$W_{act,hot}$ is the actual cycle work on the hot start test, kWh

If periodic regeneration in accordance with paragraph 6.6.2. applies, the regeneration adjustment factors $k_{r,u}$ or $k_{r,d}$ shall be multiplied with or be added to, respectively, the specific emissions result e as determined in equations 69 and 70."