Agreement

Concerning the Adoption of Uniform Technical Prescriptions for Wheeled Vehicles, Equipment and Parts which can be Fitted and/or be Used on Wheeled Vehicles and the Conditions for Reciprocal Recognition of Approvals Granted on the Basis of these Prescriptions*

(Revision 2, including the amendments which entered into force on 16 October 1995)

Addendum 114 – Regulation No. 115

Revision 1 - Amendment 1

Uniform provisions concerning the approval of:
I. Specific LPG (liquefied petroleum gases) retrofit systems to be installed in motor vehicles for the use of LPG in their propulsion system
II. Specific CNG (compressed natural gas) retrofit systems to be installed in motor vehicles for the use of CNG in their propulsion system

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Annex 6A,

Paragraph 2., amend to read:

"2. Calculation of the LPG energy ratio
The fuel consumption value shall be calculated from the emissions of hydrocarbons, carbon monoxide, and carbon dioxide determined from the measurement results assuming that only LPG is burned during the test.

The LPG ratio of the energy consumed in the cycle is then determined as follows:

\[ G_{\text{LPG}} = \frac{M_{\text{LPG}} \times 10000}{(F_{\text{norm}} \times \text{dist} \times d)} \]

Where:

- \( G_{\text{LPG}} \): the LPG energy ratio (%);
- \( M_{\text{LPG}} \): the LPG mass consumed during the cycle (kg);
- \( F_{\text{norm}} \): the fuel consumption (l/100 km) calculated in accordance with paragraph 1.4.3. (b) of Annex 6 to Regulation No. 101. If applicable, the correction factor \( c_f \) in the equation used to determine \( F_{\text{norm}} \) shall be calculated using the H/C ratio of the gaseous fuel;
- \( \text{dist} \): distance travelled during the cycle (km);
- \( d \): density \( d = 0.538 \text{ kg/liter} \)."

Annex 6B,

Paragraph 2., amend to read:

"2. Calculation of the CNG energy ratio
The fuel consumption value shall be calculated from the emissions of hydrocarbons, carbon monoxide, and carbon dioxide determined from the measurement results assuming that only CNG is burned during the test.

The CNG ratio of the energy consumed in the cycle is then determined as follows:

\[ G_{\text{CNG}} = \frac{M_{\text{CNG}} \times c_f \times 10000}{(F_{\text{norm}} \times \text{dist} \times d)} \]

Where:

- \( G_{\text{CNG}} \): the CNG energy ratio (%);
- \( M_{\text{CNG}} \): the CNG mass consumed during the cycle (kg);
- \( F_{\text{norm}} \): the fuel consumption (m\(^3\)/100 km) calculated in accordance with paragraph 1.4.3. (c) of Annex 6 to Regulation No. 101; dist: distance travelled during the cycle (km);
- \( d \): density \( d = 0.654 \text{ kg/m}^3 \);
- \( c_f \): correction factor, assuming the following values:
  - \( c_f = 1 \) in case of G20 reference fuel;
  - \( c_f = 0.78 \) in case of G25 reference fuel."