

30 April 2012

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## **Global Registry**

**Created on 18 November 2004, pursuant to Article 6 of the Agreement concerning the establishing of global technical regulations for wheeled vehicles, equipment and parts which can be fitted and/or be used on wheeled vehicles (ECE/TRANS/132 and Corr.1) done at Geneva on 25 June 1998**

### **Addendum 4: Global technical regulation No. 4**

**Test procedure for compression-ignition (C.I.) engines and positive-ignition (P.I.) engines fuelled with natural gas (NG) or liquefied petroleum gas (LPG) with regard to the emission of pollutants**

#### **Amendment 1 - Corrigendum 1**

Established in the Global Registry on 17 November 2011

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Paragraph 8.6.2., amend to read:

"8.6.2. Calculation of NMHC and CH<sub>4</sub>

The calculation of ...

...

The concentration of NMHC and CH<sub>4</sub> shall be calculated as follows for method (a):

$$c_{\text{NMHC}} = \frac{c_{\text{HC(w/oNMC)}} \times (1 - E_{\text{M}}) - c_{\text{HC(w/NMC)}}}{E_{\text{E}} - E_{\text{M}}} \quad (67)$$

$$c_{\text{CH}_4} = \frac{c_{\text{HC(w/NMC)}} - c_{\text{HC(w/oNMC)}} \times (1 - E_{\text{E}})}{r_{\text{h}} \times (E_{\text{E}} - E_{\text{M}})} \quad (68)$$

..."

Paragraph 9.5.5., amend to read:

"9.5.5. Total system verification

The total accuracy of the CVS sampling system and analytical system shall be determined by introducing a known mass of a pollutant gas into the system while it is being operated in the normal manner. The pollutant is analyzed, and the mass calculated according to paragraph 8.5.2.4. except in the case of propane where a *u* factor of 0.000507 is used in place of 0.000480 for HC. Either of the following two techniques shall be used."

Paragraph A.4.2., amend to read:

"A.4.2. Regression analysis

...

The standard error of estimate (*SEE*) shall be calculated as follows:

$$SEE = \sqrt{\frac{\sum_{i=1}^n [y_i - a_0 - (a_1 \times x_i)]^2}{n - 2}} \quad (96)$$

..."