Economic and Social Council

Economic Commission for Europe

Inland Transport Committee

World Forum for Harmonization of Vehicle Regulations

175th session
Geneva, 19-22 June 2018
Item 14.3. of the provisional agenda
**Consideration and vote by AC.3 of draft UN GTRs
and/or draft amendments to established UN GTRs, if any:**

Proposal for Amendment 1 to UN GTR No. 19 (Evaporative Test emission procedures for the Worldwide harmonized Light vehicles Test Procedures (EVAP WLTP))

Submitted by the European Union and Japan[*]

Addendum

The text reproduced below was prepared by the representative of Japan inserting minor corrections in Annex 1 in ECE/TRANS/WP.29/2018/73. It is submitted to the World Forum for Harmonization of Vehicle Regulations (WP.29) and to the Executive Committee (AC.3) of the 1998 Agreement for consideration at their June 2018 sessions, subject to final endorsement by the Working Party on Pollution and Energy at its June 2018 session.

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[*] In accordance with the programme of work of the Inland Transport Committee for 2018–2019 (ECE/TRANS/274, para. 123 and ECE/TRANS/2018/21/Add.1, Cluster 3.1), 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.

In document ECE/TRANS/WP.29/2018/73, Annex 1

Paragraph 6.6.1.7.2., correct to read:

"6.6.1.7.2.   Within 15 minutes after the ambient temperature has reached 35 °C, the tank relief valve shall be opened to load the canister. This loading procedure may be executed either inside or outside an enclosure. The canister loaded according to this paragraph shall be disconnected and shall be kept in the soak area. A dummy canister shall be installed to the vehicle when undertaking the procedure specified in paragraphs 6.6.1.9. to 6.6.1.12. inclusive of this annex."

Paragraph 6.6.1.8.2., correct to read:

"6.6.1.8.2.   Alternatively, the depressurisation puff loss overflow from the vehicle canister during its depressurisation may be measured using a SHED.

Within 15 minutes after the ambient temperature has reached 35°C as described in 6.6.1.6. of this annex, the chamber shall be sealed and the measurement procedure shall be started.

The hydrocarbon analyser shall be zeroed and spanned, after which the hydrocarbon concentration, temperature and barometric pressure shall be measured to give the initial readings C_{HCi}, P_i and T_i for the sealed tank depressurisation puff loss overflow determination.

The ambient temperature T of the enclosure shall not be less than 25°C during the measurement procedure.

At the end of the procedure described in paragraph 6.6.1.7.2. of this annex, the hydrocarbon concentration in the chamber shall be measured after 60 ± 5 seconds. The temperature and the barometric pressure shall also be measured. These are the final readings C_{HCf}, P_f and T_f for the sealed tank depressurisation puff loss overflow.

The sealed tank puff loss overflow result shall be calculated according to paragraph 7.1. of this annex and recorded."

Paragraph 7.1., correct to read:

"7.1.   The evaporative emission tests described in this Annex allow the hydrocarbon emissions from the puff loss overflow, diurnal and hot soak tests to be calculated. Evaporative losses from each of these tests shall be calculated using the initial and final hydrocarbon concentrations, temperatures and pressures in the enclosure, together with the net enclosure volume.

The following equation shall be used:

$$M_{HC} = k \times V \times \left(\frac{C_{HCf} \times P_f}{T_f} - \frac{C_{HCi} \times P_i}{T_i} \right) + M_{HC,out} - M_{HC,in}$$

where:

M_{HC} is the mass of hydrocarbons, grams;

$M_{HC,out}$ is the mass of hydrocarbons exiting the enclosure in the case of fixed volume enclosures for diurnal emission testing, grams;

$M_{HC,in}$ is the mass of hydrocarbon entering the enclosure in the case of fixed volume enclosures for diurnal emission testing, grams;

C_{HC} is the measured hydrocarbon concentration in the enclosure, ppm volume in C_1 equivalent;

V   is the net enclosure volume corrected for the volume of the vehicle with the windows and the luggage compartment open, m^3. If the volume of the vehicle is not known, a volume of 1.42 m^3 shall be subtracted;

T   is the ambient chamber temperature, K;

P   is the barometric pressure, kPa;

H/C   is the hydrogen to carbon ratio;

H/C   is taken to be 2.33 for puff loss overflow measurement in SHED and diurnal test losses;

H/C   is taken to be 2.20 for hot soak losses;

k   is $1.2 \times 10^{-4} \times (12 + H/C)$, in $(g \times K/(m^3 \times kPa))$;

i   is the initial reading;

f   is the final reading;"

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