Transmitted by the expert from
the United Kingdom

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UK PROPOSAL TO AMEND
DOCUMENT ECE/TRANS/WP.29/GRPE/2007/8

PROPOSAL

Annex 4A, Appendix 5, paragraph 1.3.3.3., amend to read:

"Include elements which operate under conditions that achieve greater than **60**, **70** and **80** per cent solid particle penetration respectively at 30, 50 and 100 nm particle diameters for the sample pre-conditioning unit as a whole."

Annex 4A, Appendix 5, paragraph 1.4.4., amend to read:

"Volatile Particle Remover

The volatile particle remover (VPR) shall comprise one particle number diluter (PND_1), an evaporation tube and a second diluter (PND_2) in series. This dilution function (DF_{tot}) is to reduce the number concentration of the sample entering the particle concentration measurement unit to less than 10,000 particles cm^{-3} and to suppress nucleation within the sample. DF_{tot} is calculated as the product of the dilution factor in the first particle number diluter ($PNDF_1$) and the dilution factor in the second particle number diluter $PNDF_2$.

The VPR shall operate under conditions that achieve greater than 99 per cent reduction of 30nm C_{40} particles and greater than **60**, **70 and 80** per cent respectively solid particle penetration at 30, 50 and 100 nm particle diameters. "

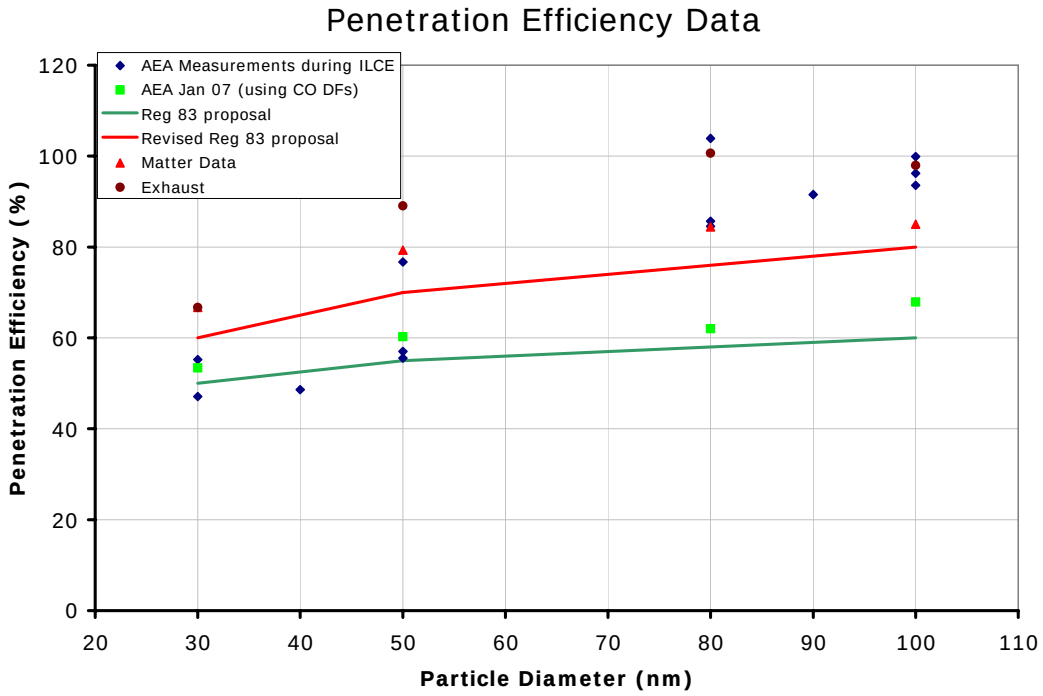
Annex 4A, Appendix 5, paragraph 2.3.2., amend to read:

"The test aerosol for these measurements shall be solid particles of diameters 30, 50 and 100 nm and a minimum concentration of 1,000 particles cm^{-3} at the VPR inlet. Particle concentrations shall be measured upstream and downstream of the components. Minimum penetration efficiencies of **60**, **70 and 80** per cent respectively shall be achieved at the three test particle diameters.

It is recommended that the penetration efficiency of the VPR is determined as a complete unit. Calibration shall be conducted at the instrument manufacturer's recommended operating conditions."

JUSTIFICATION

The Volatile Particle Remover (VPR) penetration efficiencies specified in ECE/TRANS/WP.29/GRPE/2007/8 were based on AEA's measurements of VPR penetration efficiency during the PMP Light Duty Inter-Laboratory Comparison Exercise. Subsequent measurements by AEA on the Golden System using exhaust particles, by Matter Engineering on clones of the Golden System and by Horiba on their Solid Particle Counting System showed much higher penetration efficiency results.



NB: Matter and Exhaust data for 30nm coincident

These measurements were made using a variety of techniques. A number of differences between the methods used to obtain the high and low efficiency datasets have been identified, including aerosol generation method and neutralisation of test aerosol. These will be investigated to determine the significant factors and calibration guidance will be amended to reflect best practice currently used by instrument manufacturers.

The above proposal therefore amends the VPR penetration efficiency requirements to reflect the performance of the systems used in the PMP Light Duty Inter Laboratory Correlation Exercise when subjected to vehicle exhaust or calibrated according to their manufacturers' procedures.

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