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World Forum for Harmonization of Vehicle Regulations

Working Party on Pollution and Energy

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Item 9 of the provisional agenda

FUEL QUALITY

Status report on market fuel quality

Submitted by the experts from the International Petroleum Industry Environment Conservation Association and the International Organization of Motor Vehicle Manufacturers

The text reproduced below was prepared by the experts from the International Petroleum Industry Environment Conservation Association (IPIECA) and the International Organization of Motor Vehicle Manufacturers (OICA) to report back to the Working Party on Pollution and Energy (GRPE) on the second joint meeting between IPIECA and OICA following the request of informal group on Fuel Quality (FQ) of GRPE to cooperate on the issue of fuel quality harmonization.

Minutes of Fuel Quality meeting between IPIECA and OICA
held in Paris, on 28-29 September 2009

Following the January 2009 GRPE mandate to continue the discussion on the market fuel quality, OICA and IPIECA had another meeting to develop the technical details of the two steps approach, focussing on the first set of parameters, as listed in working paper No. FQ-03-05, para. 15. Mr. Gauvin (France) kindly accepted to chair the meeting.

Participants introduced themselves and announced their detailed affiliations. The agenda was adopted as drafted.

The Chairman opened the meeting recalling the terms of reference of the informal group on Fuel Quality and the mandate given to OICA and IPIECA to prepare a draft of technical specifications for the first set of parameters.

IPIECA raised concerns that the terms of reference may need to be reviewed. For that purpose, the Chairman invited IPIECA to submit a document to GRPE, if necessary.

IPIECA underlined that the discussion should focus on parameters which may directly affect emissions control equipment (first step) and that IPIECA could not, at this stage, consider being engaged in a second step. OICA believed that considering only the first step parameters was not sufficient when discussing emissions regulations beyond Euro 2 level.

The group then reviewed in details the attached tables, which were originally drafted during the first IPIECA and OICA meeting held in Chicago, on 6 October 2008. The results of this review were shown in Annexes 1 (Gasoline) and 2 (Diesel).

The aim of these tables was to link the vehicle technology levels associated with the various emission levels and with the corresponding market fuel quality, to ensure proper functioning of in-use vehicles. A certain number of parameters were agreed upon, while a number of parameters remained to be discussed (indicated as "TBD") and will be addressed in the course of 2010. Moreover, tentative values put in square brackets still need to be confirmed. In addition to the tables, the experts deemed necessary to add an explanatory text, which will be developed in the course of 2010. A further meeting was envisaged for the first quarter of 2010.

Regarding the administrative outcome of the process, the Chairman outlined that, in his view, two options were possible at this stage: either an annex to the corresponding UNECE Regulations No. 83, No. 49 and possibly No. 101, or an annex to the Consolidated Resolution on the Construction of Vehicles (RE.3). The issue should be clarified by GRPE and the World Forum for Harmonization of Vehicle Regulations (WP.29).

Annex 1

Fuel quality limits – joint IPIECA and OICA proposal
Step 1 of the GRPE two-step approach

Gasoline parameters ¹	Euro 2 emissions enabling fuel ²	Euro 3 emissions enabling fuel ³	Euro 4 emissions enabling fuel ⁴	Test method
Sulphur (mg/kg or ppm)	≤ 500	≤ 150	≤ 50 ⁵	EN ISO 20846 EN ISO 20884
Metal Content				
Lead (g/l)	no intentional addition, with max ≤ 0,013	no intentional addition, with max ≤ 0,005	no intentional addition, with max ≤ 0,005	EN 237
Manganese (mg/l)	TBD	TBD	TBD	[ICP]
Iron (mg/l)	TBD	TBD	TBD	[ICP]
Potassium (mg/l)	TBD	TBD	TBD	[ICP]
Phosphorus (mg/l)	no intentional addition	no intentional addition	no intentional addition	[EN 14107]
Oxygen % (m/m)	[≤ 2,7] ⁶	TBD	TBD	EN 1601 EN 13132
Oxygenates % (v/v) - methanol - ethanol	[≤ 3,0] ⁷ [≤ 5,0] ⁸	TBD	TBD	EN 1601 EN 13132
RVP (kPa)	To be explained in text and addressed later	To be explained in text and addressed later	To be explained in text and addressed later	EN 13016/1 DVPE
Density (kg/m3)	To be addressed later	To be addressed later	To be addressed later	EN ISO 3675 EN ISO 12185
RON (-)	To be addressed later	To be addressed later	To be addressed later	EN ISO 5164
MON (-)	To be addressed later	To be addressed later	To be addressed later	EN ISO 5163

¹ See Good Housekeeping and Enforcement from the Partnership for Clean Fuels and Vehicles (PCFV) brochure and CEN/TR 15367

² See UNECE Regulations Nos. 83.03 and 49

³ See UNECE Regulations Nos. 83.05 (row A) and 49

⁴ See UNECE Regulations Nos. 83.05 (row B) and 49

⁵ United Nations Environment Programme (UNEP) decision taken at the fourth global PCFV meeting, held at UNEP Headquarters in Nairobi (Kenya) on 14-15 December 2005.

⁶ Oxygen content would correspond to maximum ethanol content for Euro 3 and 4

⁷ Methanol content remains the same for Euro 3 and 4

⁸ Ethanol content would be permitted to increase to a maximum of 10 per cent for Euro 3 and 4

Annex 2Fuel Quality limits – joint IPIECA and OICA proposal
Step 1 of the GRPE two-step approach

Diesel fuel parameters ⁹	Euro 2 emissions enabling fuel ¹⁰	Euro 3 emissions enabling fuel ¹¹	Euro 4 emissions enabling fuel ¹²	Test method
Sulphur (mg/kg)	≤ 500	≤ 350	≤ 50 ¹³	EN ISO 20846 EN ISO 20884
Ash % (m/m)	≤ 0,01	≤ 0,01	≤ 0,01	EN/ISO 6245
Total Contamination (mg/kg)	≤ 24	≤ 24	≤ 24	EN 12662
Cetane Number	To be addressed later	To be addressed later	To be addressed later	EN ISO 5165
Cetane Index	To be addressed later	To be addressed later	To be addressed later	EN ISO 4264
Density (kg/m ³) at 15°C	[800 - 860]	TBD	TBD	EN ISO 3675 EN ISO 12185
Viscosity (mm ² /s)	To be explained in text	To be explained in text	To be explained in text	EN ISO 3104
Flash Point (°C)	To be explained in text	To be explained in text	To be explained in text	EN ISO 2719
FAME % (v/v)	≤ 5	≤ 5	≤ 5	EN 14078
Water (mg/kg)	To be explained in text	To be explained in text	To be explained in text	EN ISO 12937
Lubricity (micron)	[≤ 460]	[≤ 460]	[≤ 460]	ISO 12156-1

⁹ See Good Housekeeping and Enforcement from Partnership for Clean Fuels and Vehicles (PCFV) brochure and CEN/TR 15367

¹⁰ See UNECE Regulations Nos. 83.03 and 49

¹¹ See UNECE Regulations Nos. 83.05 (row A) and 49

¹² See UNECE Regulations Nos. 83.05 (row B) and 49

¹³ United Nations Environment Programme (UNEP) decision taken at the fourth global PCFV meeting, held at UNEP Headquarters in Nairobi (Kenya) on 14-15 December 2005.

If Diesel Particulate Filter, 10 ppm maximum [required].