Working paper No. **FQ-05-03**
(5th informal meeting on Fuel Quality,
Geneva, 12 January 2010,
agenda item 3.1)

Presentation to GRPE

January 2010

Rob Cox (IPIECA)

Harmonization – what we believe

- Agree with Autos that fuels should be ‘fit for purpose’
- Do not support importation of vehicles into areas where the fuel supply is inappropriate for the technology level
- Key is to supply fuels that enable OEM emission control devices to work properly
- Focus on air quality, not just tailpipe emissions

IPIECA's understanding of OICA premise

OICA

ORGANISATION INTERNATIONALE DES CONSTRUCTEURS D'AUTOMOBILES
INTERNATIONAL ORGANIZATION OF MOTOR VEHICLE MANUFACTURERS

Mr Bernard Gauvin,
Chairman of the UNECE World Forum
for Harmonisation of Vehicle Regulations, WP29.

Mr José Capel Ferrer,
Director of the UNECE Transport Division

Hannover, 20 September 2006.

Gentlemen

You are already very familiar with the serious issue of the limitation placed on the effectiveness of vehicle pollution control equipment by the quality of the fuel used and available in the marketplace.

With increasingly stringent vehicle exhaust emissions requirements, it is clear that market fuel quality has to follow more closely the development in engine and exhaust after-treatment technology. In the developed world this close relationship is recognized, at least to some degree, but in developing countries and transition economies this is mostly not the case.

Many developing countries are already implementing ambitious emission control programmes for vehicles as a remedy for increasingly high levels of urban air pollution. Indeed this can be seen from the fact that new contracting parties to the 1958 Agreement usually begin by adopting the exhaust emissions Regulations immediately. Unfortunately, these countries often fail to consider market fuel quality issues when deciding the stringency of the programmes. Even in developed countries, regulation of market fuel quality is unharmonised and not always fully aligned with the vehicle technology necessary to meet emissions regulations.

These facts point to the need to work toward global fuel regulations, in parallel to on-going work dealing with globally harmonized vehicle regulations.

The chief executive officers of the major vehicle manufacturers, at their recent global meetings, have agreed that this issue is becoming critical and that the most effective way to address it would be for fuel quality to be regulated at UN level. They therefore instructed OICA to work towards this objective.

This need was also recognised by the participants in the Environmentally Friendly Vehicles Conference held last November in Birmingham, which concluded that:-
"there is a need to consider global vehicle and fuel standards" and
"it was recognised that the UN/ECE World Forum for Harmonisation of Vehicle Regulations (Working Party 29) was the right forum to continue working towards this goal."

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"...the serious issue of the limitation placed on the effectiveness of vehicle pollution control equipment by the quality of the fuel used and available in the marketplace...."

"...it is clear that market fuel quality has to follow more closely the development in engine and exhaust after-treatment technology..."

"...even in developed countries, regulation of market fuel is unharmonized and not always fully aligned with the vehicle technology necessary to meet emissions regulations..."

ToR

"The informal group shall develop …. recommendations on market fuel quality to ensure that vehicles….use in their daily service fuels with specific characteristics relating to the vehicle emission levels and technology type"

OICA & IPIECA discussions

- Summarized in working paper No. FQ-03-02
- Some agreement on basic parameters
- Fundamental difference of opinion on wider scope and approach
- IPIECA: specify fuel parameters that could degrade emissions control equipment
- OICA: specify any parameter that affects emissions

FQ-02 minutes

- **USA:** *"..suggested that the fuel quality parameters should be limited to those fuel controls deemed necessary to enable the corresponding emission limits of the motor vehicle engines (e.g. sulphur, lead)."*
- **EC:** *"…suggested considering, in a first step, a reduced number of fuel parameters which have a direct influence on the engine emissions, such as lead and sulphur"*
- **China, Canada, India:** *"…confirmed to go forward with a first set of fuel parameters in relation with engine emission technology type, as suggested by the EC expert"*
- ***Switzerland, Romania, the Netherlands, Belgium, Czech Republic, France, Germany, Hungary and Italy*** *also supported the position of the EC*

IPIECA and OICA discussions on harmonization of Gasoline and Diesel parameters

EURO II – EURO IV

Report back to FQ informal group

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/l 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

See Good Housekeeping and Enforcement from PCFV brochure and CEN/TR 15367

[1] See UN-ECE R. 83.03 and R.49

[1] See UN-ECE R. 83.05 (row A) and R.49

[1] See UN-ECE R. 83.05 (row B) and R.49

[1] UNEP decision taken at the 4th global PCFV meeting, 14 - 15 December 2005 at UNEP Headquarters in Nairobi, Kenia.

[1] Oxygen content would correspond to max ethanol content for Euro 3 and 4

[1] Methanol content remains the same for Euro 3 and 4

[1] Ethanol content would be permitted to increase to max 10% for Euro 3 and 4

Diesel fuel 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)	≤ 500	≤ 350	≤ 50[5]	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/m3) at 15°C	[800 - 860]	TBD	TBD	EN ISO 3675 EN ISO 12185
Viscosity (mm2/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 PCFV brochure and CEN/TR 15367
10 See UN-ECE R. 83.03 and R. 49
11 See UN-ECE R. 83.05 (row A) and R. 49 See UN-ECE 83.05 (row B) and R. 49
12 UNEP decision taken at the 4th global PCFV meeting, 14 - 15 December 2005 at UNEP Headquarters in Nairobi, Kenia.
13 If DPF, 10 ppm max [required].

Rationale to review terms of reference