Transmitted by the experts
from OICA and IPIECA

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(GRPE Informal Group on Fuel Quality
3rd Meeting, 13 January 2009,
agenda item 2.)

Harmonization of fuel quality: report back on discussions between IPIECA and OICA on behalf of the Informal Group on Fuel Quality

Introduction

This informal document provides feedback on recent discussions between IPIECA and OICA in response to the UN-ECE request for the auto and oil industry to work together on the issue of fuel harmonization. For background on this request, reference should be made to:

> FQ-02-06 - (Secretariat) Minutes of the 2nd meeting of the informal group on Fuel Quality, June 2008
>
> October 2008: Minutes of Fuel Quality Meeting between IPIECA and OICA
> Attached as Appendix 1 to this document

As requested by the roundtable on fuel quality, representatives of OICA and IPIECA met in Chicago on October 6th 2008, to discuss the fuel parameters which should be included in a possible WP29 guideline. Minutes of this meeting are attached as Appendix 1 to this document.

As indicated in the minutes, the meeting highlighted a lack of clarity surrounding this work request. This difficulty centred around the discussions that have taken place in the WP29 round table and the informal group meetings to date: Is the objective of the exercise to delineate fuel specifications which are protective of vehicle emission control technology, or which affect emissions per se? This in turn determines the parameters and fuel quality maxima and minima that will result from the exercise. If the objective is to define fuel qualities that protect emission control equipment at a particular vehicle technology level, then the list of parameters will be very short, principally Lead, Sulphur and metal additives, and possibly a few others. However, if the objective is to define any fuel parameter that affects emissions, we are dealing with a complex interrelated system where changes to almost any common fuel quality parameter can affect emissions (either positively or negatively) to one degree or another and the list of parameters will inevitably be much longer.

The premise of OICA is that the Euro standards, as they are applied in Europe, are enabled by the CEN standards for fuel quality: the CEN specification goes alongside and supports the Euro standard, and does so *inter alia* in terms of emissions performance. The OICA view therefore, is that the entire portion of the CEN standard that can be said to be related to emissions should be included in any guidance produced.

The premise of IPIECA is that local air quality is not solely a function of tailpipe emissions, and that for application outside Europe, particularly in developing countries, IPIECA supports fuel quality parameters that ensure the correct functioning of emissions control equipment as fitted to a particular technology level vehicle.

Neither OICA nor IPIECA would support the importation of vehicles into a country for which the "correct" fuel was not available. It is the word "correct" that is causing the problem in the discussions: does it mean "correct in terms of delivering the expected emissions performance in service", or does it mean "correct in terms of its ability not to harm vehicle emissions control equipment when used with vehicles of a particular technology level (Euro II, III, IV…etc.)"?

OICA and IPIECA were unable to reach agreement on this point, however decided to use the time productively by developing a list – to the extent possible – of CEN fuel quality parameters that:

1) Affect emissions

2) Affect the functioning of vehicle emissions control equipment

3) Affect both emissions *per se* as well as emissions control equipment

Where items were not yet discussed or where agreement could not be reached, the items were listed as "To Be Discussed" (TBD). The complete list of parameters, with the conclusion reached in each case, is shown as Appendix 2.

On a subsequent conference call no further progress was possible and it was agreed that the discussions should be presented to the informal group as a 'work in progress' and that additional clarification should be sought from the informal group. It is further suggested that OICA and IPIECA each be given the opportunity to make short explanatory presentations on their respective viewpoints at the January 2009 informal group meeting prior to discussion by the group.

Appendix 1:

Minutes of Fuel Quality meeting between IPIECA and OICA – 6 October, 2008.

Meeting Location: Doubletree O'Hare Hotel, Rosemont, Illinois, USA

Present: OICA: Stu SHOWLER; Anderzs RÖJ; Dominic DICICCO; Ellen SHAPIRO; Katsuro FURUI; Kaoru HORIE; Stuart JOHNSON; Kazuhisa MOGI; Shoichi ICHIKAWA
IPIECA: Rob COX; Brian DOLL; Charles SCHLEYER; Robert LEIDICH; James WILLIAMS; Kenneth ROSE; Lewis GIBBS

The meeting opened with a reminder to participants of the requirements and limitations on anti-trust activity.

1. Welcome and introduction of participants
Participants introduced themselves and announced their detailed affiliations.

2. Adoption of Agenda
The Agenda was adopted as drafted.

3. Background – activities in WP29 and GRPE leading to this meeting.
Stu Showler and Rob Cox described the background to the organisation of the meeting, making reference to Annex 1 to the Agenda.

4. Compilation of a list of key fuel parameters (Gasoline/Diesel)
Before beginning the detailed discussion of parameters, Mr Cox asked for a discussion on the detailed scope of the assignment from the GRPE Informal Group. He said that it was not clear whether the group should address all parameters which could have an effect on vehicle emissions, or only those which interfere with the operation of emission control equipment. The Report of the Informal Group stated:

> *The experts from IPIECA and OICA were invited to prepare, for the next FQ meeting in January 2008, a list of fuel quality parameters deemed necessary to enable the corresponding emission levels of the motor vehicle engines.*

- which does not make the above distinction.

After some discussion it was agreed to evaluate all proposed parameters as to their effect on emissions control equipment, their direct (chemical) effect on vehicle emissions and their relevance for any other reason such as vehicle performance – and to report this to the Informal Group so that they could decide on the detailed scope of the list. It was noted that some parameters may fall into more than one category

Anderzs Röj presented the OICA view on the parameters to be included, based on the content of the CEN Standards already proposed to the Informal Group. The group decided to work through the full list as proposed by OICA and to annotate each parameter regarding agreements to include or exclude and assessment of the effects on emissions and equipment.

The results of this review are shown in Appendix 2, page 1 (Gasoline) and page 2 (Diesel).

A number of parameters remain to be discussed ("TBD") and these will be addressed by email exchange. A conference call to progress the discussion and, if possible, address items 5, 6 and 7 of the agenda, is scheduled for November 18, around midday European Time to allow maximum correspondence with US and Japan working hours.

Appendix 2:

List of Specifications worked on by the joint OICA and IPIECA group along with the outcome
TBD indicates that agreement has not been reached

Gasoline

Lead	***Agreed – Damage to emissions control system.***
Sulphur	***Agreed – interferes with emissions control system***
Metallic additives φ	***Agreed –*** ***(IPIECA) may interfere with emissions control system. (Awaiting peer review study results)*** ***(OICA) Damage to engine and emissions control system.***
RON	***Performance: Fuel quality parameters deemed necessary to ensure that vehicles perform as designed (excludes emissions performance).***
MON	
Benzene	***Toxic emissions: Does not relate to regulated tailpipe emissions***
Aromatics	***TBD***
Olefins	***TBD***
Oxygen/Oxygenates	***Agreed – Depending on type and level of oxygenate used, specific vehicle design measures are necessary.***
Vapour Pressure *(RVP/DVPE)*	***Agreed – Should be determined based on local climatic conditions. (CEN classes/ASTM tables?)***
VLI	***Performance issue***
Density	***Performance issue but also relates to adulteration.***
FBP	***TBD***
E70	***TBD***
E100	***TBD***
E150	***TBD***
E180	***TBD***
Residue	***TBD***

Diesel

Sulphur	***Agreed – interferes with emissions control system. May prevent the use of certain devices.***
Cetane Number	***Performance: Fuel quality parameters deemed necessary to ensure that vehicles perform as designed - tbd***
Cetane Index	
Density	***High-end density has emissions relevance (smoke) – low end is a performance issue but also relates to adulteration. tbd***
Viscosity	***Performance***
T50	***TBD***
T85	***TBD***
T95	***Emissions relevance – level of effect related to emission compliance is disputed***
PAH	***Emissions relevance – level of effect related to emission compliance is disputed***
Flash Point	***Performance and safety issue***
CCR	***Performance***
CFPP	***Performance***
Cloud Point	***Performance***
Total contamination	***TBD***
Water	***Performance & long term durability issue – housekeeping issue***
Ash	***Agreed - affects DPF performance – housekeeping issue (at the pump, not necessarily at the refinery)***
Lubricity	***Performance & long term durability issue***
Good housekeeping and enforcement	*(From UN-PCFV brochure).* • Enforcement is a vital part of encouraging governments, companies and others to meet their environmental obligations. • Enforcement deters those who might otherwise profit from violating the law, and levels the playing field for those who do comply. • Enforcement is critical to ensure that the composition of the fuels actually meets the standards, and enables emission-control components of vehicles to work as designed. • Vehicle fuel standards for petrol and diesel are usually required to be met by the refiners and importers and by other parties in the fuel distribution system

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