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PROPOSAL FOR DRAFT AMENDMENTS TO REGULATION No. 83

(Emissions of M1 and N1 categories of vehicles)

Transmitted by the Expert from the International Organization of
Motor Vehicle Manufacturers (OICA)

Note: The text reproduced below was prepared by the expert from OICA in order to fully harmonize the text of Regulation No. 83 to Directive 98/77/EC. It is based on the text of a document distributed without a symbol (informal document No. 14) during the forty-fourth session of GRPE (TRANS/WP.29/GRPE/44, para. 63).

Note: This document is distributed to the Experts on Pollution and Energy only.

A. PROPOSAL

Insert a new paragraph 8.2.7.3.1., to read:

"8.2.7.3.1. The test results are excluded from the conformity checks in the case of petrol or diesel fuel with a sulphur content

- (i) < 150 ppm (petrol fuel) and < 350 ppm (diesel fuel) respectively, for vehicles that are required to comply with the emission limits of category A in paragraph 5.3.1.4 of this Regulation, as amended by the 05 series of amendments and
- (ii) < 50 ppm (petrol and diesel fuels) for vehicles that are required to comply with the emission limits of category B in paragraph 5.3.1.4 of this Regulation, as amended by the 05 series of amendments

which was not available on a balanced geographic basis in the territory of a Contracting Party and thus fuels with higher sulphur content which have been regularly used before the date of testing."

Insert a new paragraph 11.1.6.4., to read:

"11.1.6.4. By exception to the requirements of paragraph 11.1.2., Contracting Parties may continue to approve or to register vehicles to the requirements of paragraph 5.3.1.4.2. (concerning unleaded petrol), and paragraph 5.1.3.4.3. (diesel) of this Regulation, as amended by the 04 series of amendments, if the vehicles are intended to be registered to countries where petrol and/or diesel containing sulphur

- (i) < 150 ppm (petrol fuel) and < 350 ppm (diesel fuel) respectively, for vehicles that are required to comply with the emission limits of category A in paragraph 5.3.1.4. of this Regulation, as amended by the 05 series of amendments

will not be available on a balanced geographic basis."

Insert new paragraphs 11.1.7. and 11.1.7.1., to read:

"11.1.7. Approvals to the Regulation as amended by the 05 series of amendments

11.1.7.1. By exception to the requirements of paragraph 11.1.2., Contracting Parties may continue to approve or to register vehicles to the requirements of paragraph 5.3.1.4. (concerning category A emissions) of this Regulation, as amended by the 05 series of amendments, if the vehicles are intended to be registered to countries where petrol and/or diesel containing sulphur

- (i) < 50 ppm (petrol and diesel fuels) for vehicles that are required to comply with the emission limits of category B in paragraph 5.3.1.4. of this Regulation, as amended by the 05 series of amendments

will not be available on a balanced geographic basis."

B. JUSTIFICATION

Introduction

There exists extensive documentation that describes the dependence of new emissions regulations and driving performance on fuel quality. The results of the European and U.S. Auto Oil Programmes made clear that fuel quality has a significant effect on vehicle emissions and that improved fuel quality must be linked to the increasing demands placed on vehicle technologies. Fuel quality, both for diesel and petrol, is important from a technical point of view for two main reasons:

- The enabling of advanced emissions aftertreatment technology
- Durability of engine components and emissions aftertreatment technology

Of the fuel parameters that have an environmental influence, sulphur content is the property that can poison aftertreatment devices and currently causes the most problems in-use.

Analysis

In general, individual countries define their own specific exhaust emissions and fuel quality legislation according to their environmental requirements. This means that the two issues must be coupled together in the development of the appropriate local legislation. However, as more countries apply ECE Regulations there are currently no accompanying fuel quality specifications to enable the necessary vehicle technologies to operate on the market fuels safely and properly.

The exhaust emissions standards put in force by Regulation No. 83.05 represent a substantial reduction in exhaust emissions compared with earlier versions of this Regulation. This will necessitate the fitting of advanced emission control systems that are generally sensitive to fuel quality. A problem occurs when the market fuel available is not of sufficient quality and in particular the sulphur content is too high so that the technologies applied in low emissions vehicles run into technical difficulties. The existing technical literature and the most recent results provided for the European Commission sulphur review (2000) indicate that even sulphur-free fuels are required to enable the operation of some advanced emission control systems, e.g. diesel DeNOx storage catalysts and CRT systems. The efficiency of petrol DeNOx storage catalysts and the performance of other existing and future after treatment technologies, such as 3-way catalysts, diesel oxidation catalysts, and diesel particle filters, deteriorate significantly when operated on fuel with high sulphur content.

OICA proposes to amend the ECE emissions regulations to ensure that if sufficient market fuel quality is not available on a balanced geographical basis in the sales region, then some of the emissions requirements will not apply.

Conclusions

It has become clear that lower emissions standards can only be introduced to a country's legislation when the availability of the appropriate petrol and diesel fuel quality can be guaranteed. Currently there is no formal requirement in the ECE Regulation No. 83.05 to couple the introduction of emissions legislation with fuel quality specifications. In order to align the fuels and emissions legislation, amendments to Regulation No. 83.05 are proposed.

Since the main problem for after-treatment systems is high sulphur levels, a requirement should be made that the certification and in-use emission standards of Regulation No. 83.05 must not be applied when

- a) petrol and diesel fuels containing sulphur < 150 ppm, and < 350 ppm respectively, for vehicles that are required to comply with Regulation No. 83.05 section 5.3.1.4 category A emission limits,
- b) petrol and diesel fuels containing sulphur < 50 ppm, for vehicles that are required to comply with Regulation No. 83.05 section 5.3.1.4 category B emissions limits,

are not available on a balanced geographic basis in the vehicles' sales region.

This would permit vehicles to be certified to Regulation No. 83.04 emissions standards if it is known that fuel with an appropriate sulphur content is not available in the sales region, so that emission control devices less sensitive to sulphur can be fitted to the vehicles.

The Regulation No. 83.05 in-use test would also not be valid if it could be demonstrated that the vehicle aftertreatment system has been subjected to regular use of fuel containing higher sulphur content than that permitted.

However the long-term goal must be to solve these technical and environmental problems by ensuring the supply of the appropriate fuel quality (for all fuel parameters) for advanced vehicle technologies. This can only occur when the development of exhaust emissions legislation and fuel quality legislation are linked together.

Therefore, OICA proposes to consider the above stated amendments to Regulation No. 83.05.
