



PROPOSAL FOR AN AMENDMENT TO REGULATION No. 83.05

Transmitted by the Experts from OICA

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 sufficient market fuel quality is available to enable the operation of after-treatment devices required.

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 R. 83.05 must not be applied when

- a) petrol and diesel fuels containing sulphur > 150ppm, 350ppm respectively, are available, for vehicles that are required to comply with R. 83.05 section 5.3.1.4 category A emission limits,
- b) petrol and diesel fuels containing sulphur > 50ppm are available, for vehicles that are required to comply with R. 83.05 section 5.3.1.4 category B emissions limits,

in the vehicles' sales region.

This would permit vehicles to be certified to R. 83.04 emissions standards if it is known that fuel with high sulphur content is available in the sales region, so that emission control devices less sensitive to sulphur can be fitted to the vehicles.

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 the following amendments to Regulation No. 83.05:

Amendments to Regulation No. 83.05

8.2.7.3. The manufacturer is authorised, under the supervision of the type approval authority, to carry out checks, even of a destructive nature, on those vehicles with emission levels in excess of the limit values with a view to establishing possible causes of deterioration which cannot be attributed to the manufacturer himself (e. g. use of leaded petrol, **and petrol and diesel containing sulphur**

- **> 150ppm and 350ppm respectively, for vehicles that are required to comply with R83.05 5.3.1.4 category A emission limits and**
- **> 50ppm for vehicles that are required to comply with R83.05 5.3.1.4 category B emissions limits**

before the test date). Where the results of the checks confirm such causes, those test results are excluded from the conformity check.

11.1.6. Approvals to the Regulation as amended by the 04 series of amendments

11.1.6.1. By exception to the requirements of paragraph 11.1.2., Contracting Parties may continue to approve vehicles, which are intended to be exported to countries where the use of leaded petrol was still needed, **and petrol and diesel containing sulphur**

- **> 150ppm and 350ppm respectively, for vehicles that are required to comply with R83.05 5.3.1.4 category A emission limits and**
- **> 50ppm for vehicles that are required to comply with R83.05 5.3.1.4 category B emissions limits**

were still available, to the requirements of paragraph 5.3.1.4.1. of this Regulation, as amended by the 04 series of amendments.

11.1.6.2. By exception to the requirements of paragraph 11.1.3., Contracting Parties may continue to recognize the validity of approvals granted to vehicles, which are intended to be exported to countries where the use of leaded petrol was still needed **and petrol and diesel containing sulphur**

- **> 150ppm and 350ppm respectively, for vehicles that are required to comply with R83.05 5.3.1.4 category A emission limits and**
- **50ppm for vehicles that are required to comply with R83.05 5.3.1.4 category B emissions limits**

were still available, to the requirements of paragraph 5.3.1.4.1. of this Regulation, as amended by the 04 series of amendments.