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Agenda Item 7.

Proposal concerning the future programme of the GRPE Particle Emissions sub-group

(Transmitted by the Expert from the United Kingdom)

In 1998 an informal group, associated with the GRPE, was formed with the objective of exchanging information concerning the study of vehicle particulate matter. This group has met on six occasions.

The group has been well supported with contributions provided from experts of the auto and oil industry, research organisations and governments. Presentations have dealt with air quality, particulate measurement techniques, instrumentation and also fuel and technology effects.

At its 40th session, GRPE was informed that the informal group considered that their meetings had been successful in advancing their knowledge on this subject. However, whilst experience of vehicle emitted particles would continue to develop, the group considered that continuation of their regular meeting as an exchange exercise was no longer appropriate.

GRPE heard that the informal group recognised that the regulated particulate limit values, proposed for Regulation 49, were approaching the limit of capability of traditional measuring techniques and instrumentation. The informal group also r ecognised that emerging health concerns indicated that further measures to control particulate emissions may be required. The group considered that there would be a benefit in addressing the measurement question but that for them to do so a formal mandate from GRPE would be required.

GRPE agreed that a proposal for the future activity of the "Particles Group" would be presented at their 41st session.

In the European Union the governments of the Federal Republic of Germany, France, the Netherlands, Sweden and the United Kingdom, have agreed to a collaborative research programme. The purpose of this research is to develop a new test methodology that will permit the measurement of particulates at levels lower than those currently prescribed by regulation. It is envisaged that, for the future, particle size distribution (the number of particles in a particular size range) will be the metric of interest with respect to health; the collaborative research will therefore address this metric. The ability of available technology to reduce particle emission will also be assessed, using the new procedure, in order that the potential for future standards may be gauged. In addition, in parallel with this research, there will be continuous monitoring of the emerging knowledge from health experts in this field. On December 20th 2000, the above-mentioned governments issued a statement to the EU Motor Vehicles Emission Group; this statement is annexed to this informal paper.

The objective of the research mentioned above is fully compatible with the observations of the Particle Group during their last meeting and, as a collaborative project, is open to wider contribution. It is proposed that the Chairman of GRPE seeks the mandate of WP.29 for the formation of an ad hoc group of GRPE experts with the objective of developing a new particulate measurement methodology for application as a world harmonised standard.

Proposal from the Experts of the Federal Republic of Germany, France, the Netherlands, Sweden and the United Kingdom to the MVEG.

PREPARATION OF A TEST METHODOLOGY FOR THE MEASUREMENT OF PARTICULATE EMISSION.

1. Introduction.

The Environment Council, in its conclusions on the Auto-Oil II programme, indicated its ongoing concern with respect to particulate emissions. In particular they commented on the need for a new measuring procedure for nano-particles that would be equally applicable to private cars, light-duty and heavy-duty vehicles and that would provide the basis for future standards aimed at a significant reduction in particulate emissions.

The following proposal is made on behalf of the experts of the Federal Republic of Germany, France, the Netherlands, Sweden and the United Kingdom who have a common purpose to develop a new test methodology for the assessment of nano-particle emission. The group will seek to develop a methodology that will be equally valid whether measuring particulate emission from compression ignition or from spark ignition engines. This group of experts invites others to contribute to this objective and seeks support from the Commission for the proposed way forward.

2. Background.

With the latest amendments to Directives 70/220/EEC and 88/77/EEC, the European Union has developed a body of legislation that is providing clear reductions in pollution loads from road transport. It is clear that, with the provisions already adopted, there will be further substantial improvements in air quality by the end of this decade. However, the current measures may not be sufficient to address some emerging health concerns associated with particulates.

Research has demonstrated associations between air pollution and a range of health outcomes, in particular, respiratory and cardiovascular effects and mortality. Most authorities now accept that the case for a causal relationship between exposure to airborne particles and effects on health are compelling. Particulate emission from diesel engines has been identified as one of the main sources of urban air pollution.

Current standards governing particulate emission employ a mass metric as a means to define acceptable levels of emission but, due to limitations of the test equipment, any further reductions in the mass limit values will require the development of a new measurement methodology.

Furthermore, it is desirable that a new methodology helps to harmonise the definition of particulate so that future measures to control tailpipe emissions relate directly to targets for the improvement of air quality and reductions in health effects.

3. Proposed Action.

One option would be to develop further the mass metric approach, allowing for any further tightening of limit values to be related to the present standards. Such a method would maintain the link with the current medical evidence that indicates that increased mortality is associated with PM10, which is also a mass metric. However, a growing number of medical experts consider that nanometer size particles, that may be insignificant to the total mass of particulates, may be more significant in terms of health effects. To address this premise particulate size distribution (i.e. the number of particles in a particular size range) may be a more appropriate metric for further standards.

At this time there is no agreed methodology by which particulate size distribution may be assessed. The proposal of this group of experts is that they work collectively on the development of a test methodology that may be employed in the assessment of particulate, characterised by size distribution, across a broad range of technologies and including both compression ignition and spark ignition engines. The methodology could then be used in addition to, or in place of, the current mass measurement systems, as dictated by the medical evidence existing at that time.

The group aim is to deliver such a methodology and so assist the Commission in its consideration of a response to Council to further review the currently enacted particulate emission standards. To further assist the Commission with their task, the group will deliver test data, collected using the new methodology, from engines using advanced particulate reduction techniques. It is the intention of the group that they deliver the new methodology and related data within two years.

4. Shared Development.

This group of experts considers that the most effective way to develop this new methodology is to work collectively toward a common purpose. We therefore commit to combine our current knowledge on this subject and embark upon a work programme that, through our independent but co-ordinated contributions, will deliver a new nano-particle measurement procedure in accordance with the express desire of the Council.

5. Request.

We, the experts of the Federal Republic of Germany, France, the Netherlands, Sweden and the United Kingdom request that the Commission indicate their support for our common objective, namely to provide the tools to deliver the possibility of a further improvement in the emission performance of both light and heavy duty vehicles.

The UK has volunteered to act as co-ordinator for this steering group of Member States. The steering group invites experts from NGO's and from industry to contribute to the programme with technical assistance and advice.

20 December 2000