

**Review of Fuels Directive 2003/17/EC:  
Response to EC DG Environment's  
Non-Paper No. 8 on Nonroad Mobile  
Machinery Fuel Requirements**

***The CECE - CEMA - EUROMOT Position***

as of 14 November 2005

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of Internal Combustion  
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**EUROMOT**  
Engine-in-Society

Euromot is the **European Association of Internal Combustion Engine Manufacturers**.

We represent the leading manufacturers of internal combustion engines used in a broad range of nonroad and marine applications (construction, mining and material handling equipment, trucks and buses, agricultural and forestry equipment, lawn/garden and recreational equipment, commercial marine and seagoing vessels, workboats and pleasure boats, rail traction, power generation).

Euromot has been working for many years with international regulatory bodies, eg European Union, the UN Economic Commission for Europe (UNECE), the UN International Maritime Organizations (IMO) and the Central Commission for the Navigation on the Rhine (CCNR). In addition, we are seeking an open and fair dialogue with national governments to provide reliable know-how on advanced internal combustion engine technologies in general and, in particular, on the feasibility of environmental as well as cost-effective product regulations. To achieve a pro-active engagement of all stakeholders in international harmonisation of regulations affecting engines and equipment, we coordinate our activities worldwide with trade associations of the nonroad and marine industry sector.

For further information about our Association please pay us a virtual visit at <http://www.euromot.org> – your bookmark for engine power worldwide.

CECE is the **Committee for European Construction Equipment**.  
<http://www.cece-eu.org>

CEMA is the **European Committee of Associations of Manufacturers of Agricultural Machinery**.  
<http://www.cema-agri.org>

**Fuel Position Paper**  
**by Euromot, CECE and CEMA**

**Response to EC DG Environment's Non-Paper No 8 on NRMM Fuel Requirements**

The current DG ENV proposal of introducing ULSD fuels for NRMM presented in non paper 8 during the fuel review stakeholders meeting on 6 October 2005 is as follows:

- introducing 350 ppm S will not be considered further
- 50 ppm S introduction by 31 December 2009
- 10 ppm S introduction and EN590 alignment by 31 December 2011

Euromot, CECE and CEMA are of the opinion that the DG ENV proposal will

- put introduction of cooled EGR systems for Stage IIIA 2006 onwards at risk
- delay an early introduction of environmentally advanced Stage IIIB technologies
- prevent PM filters and aftertreatment components from working with highest efficiency and over a long period of time
- create unnecessary burdens for NRMM small and medium enterprises due to its misalignment with the US EPA regulations.

Therefore Euromot, CECE and CEMA are objecting the DG ENV proposal with respect to (a) skipping a 350 ppm S introduction, (b) the introduction of an intermediate 50 ppm S step and (c) the introductory date of end of 2011 for 10 ppm S fuel.

The Euromot, CECE and CEMA position is as follows:

1. **By 2006** introduction of 350 ppm Sulfur fuel
2. **By January 2009**
  - the fuel Sulfur level shall be restricted to 10 mg/kg
  - the fuel specifications shall be aligned with the on-road quality according to EN590

Furthermore based on the discussions during the stakeholders meeting on 6 October 2005 Euromot, CECE and CEMA are raising three new issues regarding the non-availability of high-Sulfur fuel, the specification of Biodiesel used for blends and the harmonization of fuel dye colours.

## **1 Request for 350 ppm S Fuel by 2006**

We are aware that the timeline of the Technical Review of 98/70 does not allow for reducing fuel Sulfur contents before 2009. However, as low fuel Sulfur contents will be a key prerequisite for introducing cooled EGR systems for Stage IIIA we are strongly proposing to consider short-term pathways alternatively to the Technical Review process, such as CATP, to introduce lower fuel Sulfur contents as early as possible.

Our justification is as follows:

- The future sulfur level of heating oil (0.1 %) is not suitable for safe EGR operation under all ambient conditions (potential off-cycle emissions procedure) and in terms of durability. Sulfur levels above 350-500 mg/kg will cause condensation problems with Sulfuric Acid in EGR coolers or intake manifolds and excessive corrosion and engine wear.
- As an immediate effect lowering Sulfur levels will lower PM levels of machines already operating in the field.
- Due to the SME character of the NRMM industry we are striving for international alignment to enable cost-effectively producing uniform products for the global markets. As the US will introduce 500 ppm S fuel by 1 June 2007 industry will suffer significantly from a misalignment with the US legislation.

## **2 Request for 10 ppm S vs. 50 ppm S Fuel**

Stage IIIB technologies will require 10 ppm S due to

- extended passive regeneration mode of PM filters and CRT systems. Contrary to 50 ppm S fuel the 10 ppm S fuel will allow for or extend the period of passive regeneration modes. Being able to avoid active regeneration components will significantly reduce systems costs and also enable a 3-5% lower fuel consumption. Based on a joint Euromot-EMA study approx. 50% of all NRMM applications will use passive regeneration modes.
- extended lifetime and durability of the catalytic components in PM filters. Lower S contents are directly correlated with less S-poisoning of the catalytic active sites. This will result in longer maintenance intervals and less frequent complete replacement of filters thus reducing the operational and life cycle costs of the equipment significantly.
- alignment with US EPA regulation introducing 15 ppm S by 1 June 2010. NRMM manufacturers are mostly SME's and are required to produce one product for the global market. 18 months delay (Dec 2011 vs. June 2010) between EU and the US in introducing ULSD fuel puts an unnecessary burden on the manufacturers as the misalignment will result in additional development work and require different product placement strategies.
- in-use compliance as the Stage IIIB reference fuel requires < 10 ppm S. The longer a misalignment between the test fuel specifications and the NRMM market fuel exists the higher

will be the probability that engines in the field will not comply to the limits as they have to operate under significantly higher S contents.

### **3 Introductory Dates Jan 2009 vs. Dec 2009**

As Stage IIIB technologies can earliest be placed on the market by 31 December 2009 we are striving for Jan 2009 as the introduction date of 10 ppm S fuel.

This is due to the special infrastructure for supplying fuel to NRMM. Our experience shows that it is required to introduce new fuel qualities two years prior to the introduction dates of new stages.

In most of the case Construction and Agriculture machinery cannot use the road fuel distribution network. Because of the remote location of most of the job sites those machines are filled from fuel stored in large to very large job sites fuel tanks. A quick calculation shows that whatever is the size of the job site fuel tanks, it will take 5 fillings of the job site fuel tank at 50 ppm sulphur (90% of the tank capacity each time) to move the sulphur concentration from 2000 ppm to 50 ppm. It will take 3 other fillings of the job site fuel tank at 10 ppm sulphur to reach a final concentration of 10ppm sulphur in the fuel tank.

Furthermore the time to clean the whole fuel chain from high sulphur fuel to 10 ppm will vary a lot depending on how frequently end users will fill up their job sites fuel tanks or "home site" fuel tanks. In many cases this frequency is linked to the structure and size of the enterprise of the machine owner that varies from few machines to large fleet of hundred units. It will also take much more time in case of seasonal works such as agricultural harvesting machines.

Another agravatting factor comes from the fuel tax systems of some countries where it is common that the users fill up their home site fuel tanks just before end of the year. Some regions in Europe have quite long distance to a fuel depot and therefore machine owners could have large enough home site fuel tanks that last for at least half a year before refilling.

### **4 Non-Availability of High-Sulfur Fuel Qualities**

Euromot, CECE and CEMA are of the opinion that, once ULSD has been introduced, measures shall be put in place that prevent high S fuel from being used for Stage IIIB NRMM engines. High-S fuel will be incompatible with Stage IIIB technologies and its use will result in fatal engine and machinery failure.

## **5 Biodiesel Blends**

Biodiesel that will be used for blending shall meet the EN 14214 specification in order to guarantee the oxidation stability of the blended fuel.

## **6 Dye Colour**

European harmonization of the fuel dye colour is required to avoid possible misunderstanding when equipment circulates across EU internal borders. Due to the various fuel tax policies the risk of misfueling would be eliminated which would result in severe fines for our customers.

Our suggestion is to use three different colours, i.e. one colour for heating oil, one colour for NRMM use and one colour for onroad use.

Frankfurt/M. - 14 November 2005