



Brussels, 29

M/245

## MANDATE

to CEN for the elaboration and adoption of standards concerning minimum requirement specifications including test methods for fatty acid methylester, (FAME), as fuel for diesel engines and for space heating

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### I. Justification

The aim of the present standardisation mandate is to ensure on one hand the free movement of FAME (biodiesel), and on the other hand that users, engine and boiler manufacturers have confidence in the product and are able to offer a full warranty for their products when operated on biodiesel. Engine performances durability, emission or others are concerned. This would facilitate its market penetration, and thereby contribute to three main E.U. priorities: protection of the environment, energy supply security and employment preservation.

According to the ALTENER decision (93/500/EEC)<sup>1</sup> one of the indicative objectives for achieving a 180 million tonnes reduction of CO<sub>2</sub> emissions up to the year 2005 is to ensure for liquid biofuels a market share of 5%. Liquid biofuels deployment contribute also to the reduction of a number of harmful emissions mentioned in the directive 94/12/CE<sup>2</sup>. (CO, Gaseous aromatic hydrocarbons., Particles) and there are promising prospects for technical solutions for the increased NO<sub>x</sub> emissions.

Liquid biofuels may have a contribution to the energy supply security of the E.U., in line with the EU's relevant resolution of the Council<sup>3</sup> and the White Paper of the Commission on the Energy policy of the EU (January 1996).

Finally, they could also contribute to the employment objectives included in the Commission's white paper on growth, competitiveness and employment (1994).

As FAME is at present produced in several Member States of the EU, i.e. Austria, Belgium, France, Germany, Italy, and others and sold and used as fuel for diesel engines and for space

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<sup>1</sup> O.J. L 235, of 18.09.1993 page 41

<sup>2</sup> O.J L100, of 19.04.1995 page 42

<sup>3</sup> O.J. n° C 241, of 25.09.1996 page 1 and OJ n° C 213 of 09.12.1986.

heating throughout the Union, as FAME is traded between Member States, and as there are important activities under way in relation with national standards<sup>4</sup>; the Commission considers that the setting up of European standards would be appropriate for FAME used mainly:

- a. as sole diesel engine fuel (100%);
- b. as additive extender to EN 590 diesel engine fuel;
- c. sole or as extender to mineral oil products, in particular for the production of heat.

This approach (setting up of 3 standards, or more if necessary) is motivated by the need to take into account all interests involved with the production and use of this product (and thereby avoiding any discrimination), as well as all potential utilization in an economically and technically efficient way.

Satisfactory standard specifications concerning fuels are necessary for the reduction of exhaust emissions from diesel engines and equipment for space heating. In order to optimize exhaust emissions certain fuel parameters have to be specified often within narrow intervals. In addition the fuel must have qualities that admit storage, distribution, climate adaptation, and fitness for purpose.

If appropriate, additional standards could be drafted.

## **II Description of mandated work**

1. The Commission hereby requests CEN to elaborate and adopt European standards on requirements and methods of test, laying down those characteristics and requirements of fatty acid methylester (FAME) to be met when this product is used mainly as:
  - a. sole fuel for diesel engines (100%).
  - b. additive/extender to EN 590 diesel fuel or other mineral oil based fuels,
  - c. sole or as extender to oil, in particular for the production of heat.

Concerning b and c the specifications should allow variable blend percentages. Additionally, all methods of measuring the defined requirements shall be established. This standardization work shall take into account of international and European standards in this field.

2. Characteristics to be dealt with in the standards

### 2.1. Minimum requirement specifications

As far as advisable and physically possible these specifications for FAME as diesel engine fuel or diesel fuel extender should follow those of EN 590.

- 2.1.1. FAME - specific requirements for use mainly as sole fuel (100%) for diesel engines.

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<sup>4</sup> ÖNORMC, DIN 51606, CUNA NC 635-01, SS155436

- density at 15°C
- viscosity at 40°C
- flame point (Pensky-Martens)
- Cold filter plugging point
- sulphur content
- carbon residue (Conradson)
- cetane number
- ash content (sulphate ash)
  
- water content
- total impurities
- copper corrosion (3 h at 50°C)
- oxidation stability.
- distillation

The standardisation of additional values could be undertaken if CEN considers it appropriate, included those in connection with the "cloud point".

As far as possible standardized test methods should be used. Due to the different behaviour (compared to fossil diesel) under low temperature EN 116 should be checked for applicability and if necessary being revised.

2.1.2. FAME - specific requirements for use mainly as additive / extender to EN 590 or other mineral oil based fuels.

- Ester content
- acid number
- methanol content
- monoglyceride content
- diglyceride content
- triglyceride content
- free glycerine content
- total glycerine content
- iodine number
- phosphorous content
- alkaline metal content

Further criteria may be added during the standardisation works if necessary.

2.1.3. Minimum requirement specification for FAME used mainly sole or as extender to oil, in particular for the production of heat.

- Density at 15°C
- lower heating value
- flame point (Pensky-Martens)
- Viscosity at 40°C
- Pour point
- Carbon residue (Conradson)
- sulphur content

- water content
- total impurities
- sulphate ash content
- ester content
- bound glycerine content
- free glycerine content
- acid number.

This standard should allow the FAME utilisation under the same conditions as is at present used in certain regions of the E.U. (as it is the case in Italy). On the basis of this experience, it doesn't appear necessary at present to have an European standard for fossil heating oil. If however during the CEN work such a need would arise the Commission will examine the possibility of an adjustment to the mandate.

Further requirements may be added during the standardisation works if necessary. In all cases the specifications should ensure the FAME's fitness for purpose, included use in cold conditions, as well as storage.

## 2.2 Standardization of test methods

Additionally to the adaptation of standardized test methods for the diesel-specific requirements, all test methods for the ester-specific requirements must be standardized. Previous work in Member States has shown that GLC method (gas-liquid-chromatography) has a high potential to fulfil the requirements of standard test methods for glycerides, glycerine, methanol and ester content. The CEN could undertake standardisation work for any test method it considers appropriate.

### **III Execution request**

For the efficient carrying out of the works, the CEN could consider the possibility of the setting up of working group "ESTERS" composed of expert from different interested Member States. The group should be representative of all interested parties, farmers included.

1. The European Standards (EN) taking into account the characteristics referred to in II.2.1.1, II.2.1.2., II.2.1.3. and 2.2. will be adopted before December 1998.
2. Three linguistic versions (DE, EN, FR) of each standard will be available at adoption, together with the correct titles in the other Union languages.
3. The European Standards will be transposed into national standards and differing national standards will be withdrawn from the national collections of the EU member states within six month of their adoption.
4. Acceptance by CEN/... of this mandate will initiate the standstill period referred to in Article 7 of the Council Directive 83/189/EEC of 28 March 1983 (OJ n° L 109 of 26.04.1983)