

**DIRECTIVE 2003/17/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL**  
**of 3 March 2003**  
**amending Directive 98/70/EC relating to the quality of petrol and diesel fuels**  
**(Text with EEA relevance)**

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty establishing the European Community, and in particular Article 95 thereof,

Having regard to the proposal from the Commission <sup>(1)</sup>,

Having regard to the Opinion of the European Economic and Social Committee <sup>(2)</sup>,

After consultation of the Committee of the Regions,

Acting in accordance with the procedure laid down in Article 251 of the Treaty <sup>(3)</sup>, in the light of the joint text approved by the Conciliation Committee on 20 January 2003,

Whereas:

- (1) Directive 98/70/EC <sup>(4)</sup> lays down the environmental specifications for market fuels.
- (2) Article 95 of the Treaty provides that Commission proposals having as their object the establishment and functioning of the internal market and concerning, *inter alia*, health and environmental protection, will take as a base a high level of protection and that the European Parliament and the Council will also seek to achieve this objective.
- (3) A revision of Directive 98/70/EC is foreseen in order to meet the requirements of Community air quality standards and related objectives and in order to incorporate additional specifications to complement those mandatory specifications already laid down in Annex III and Annex IV to the Directive.
- (4) A reduction of the sulphur content of petrol and diesel fuels has been identified as a means of contributing to the achievement of those objectives.
- (5) The adverse effect of sulphur in petrol and diesel fuels on the effectiveness of catalytic exhaust gas after-treatment technologies is well established for on-road vehicles and increasingly in the case of non-road mobile machinery.
- (6) Road vehicles are increasingly reliant upon catalytic after-treatment devices to attain the emissions limits laid down in Council Directive 70/220/EEC of 20 March 1970 on the approximation of the laws of the Member

States on measures to be taken against air pollution by emissions from motor vehicles <sup>(5)</sup> and Council Directive 88/77/EEC of 3 December 1987 on the approximation of the laws of the Member States relating to the measures to be taken against the emission of gaseous and particulate pollutants from compression ignition engines for use in vehicles, and the emission of gaseous pollutants from positive ignition engines fuelled with natural gas or liquefied petroleum gas for use in vehicles <sup>(6)</sup>. Accordingly a reduction in the sulphur content of petrol and diesel fuels is likely to have a larger impact on exhaust emissions than changes to the other fuel parameters.

- (7) The introduction of fuels with a maximum sulphur content of 10 mg/kg will improve the fuel efficiency attainable with new, emerging vehicle technologies and should be examined in the case of non-road mobile machinery and should lead to significant reductions in emissions of conventional air pollutants when used in existing vehicles. These benefits will compensate for the increased emissions of CO<sub>2</sub> associated with the production of lower sulphur petrol and diesel fuels.
- (8) It is therefore appropriate to lay down measures ensuring the introduction and availability of fuels with a maximum sulphur content of 10 mg/kg. In this regard fiscal incentives have been shown to be effective in promoting the early introduction of higher quality fuels according to national needs and priorities and to shorten the transition period where two different qualities are distributed in the market. The use of fiscal measures, at the appropriate national or Community level, should be promoted and encouraged.
- (9) The widespread availability of fuels with a maximum sulphur content of 10 mg/kg will provide a basis for automobile manufacturers to make significant additional progress towards improving the fuel efficiency of new vehicles. The potential contribution of fuels with a maximum sulphur content of 10 mg/kg towards the attainment of the Community's target of 120 g/km for the average CO<sub>2</sub> emissions of the new car fleet will be assessed when the current environmental commitments with the automobile manufacturers are reviewed in 2003.

<sup>(1)</sup> OJ C 213 E, 31.7.2001, p. 255.

<sup>(2)</sup> OJ C 36, 8.2.2002, p. 115.

<sup>(3)</sup> Opinion of the European Parliament of 29 November 2001 (OJ C 153 E, 27.6.2002, p. 253). Council Common Position of 15 April 2002 (OJ C 145 E, 18.6.2002, p. 71) and decision of the European Parliament of 26 September 2002 (not yet published in the Official Journal). Decision of the European Parliament of 30 January 2003 and Council decision of 6 February 2003.

<sup>(4)</sup> OJ L 350, 28.12.1998, p. 58; Directive as last amended by Commission Directive 2000/71/EC (OJ L 287, 14.11.2000, p. 46).

<sup>(5)</sup> OJ L 76, 6.4.1970, p. 1; Directive as last amended by Directive 2001/100/EC of the European Parliament and of the Council (OJ L 16, 18.1.2002, p. 32).

<sup>(6)</sup> OJ L 36, 9.2.1988, p. 33; Directive as last amended by Commission Directive 2001/27/EC (OJ L 107, 18.4.2001, p. 10).

- (10) It is necessary to ensure that sufficient quantities of petrol and diesel fuels with a maximum sulphur content of 10 mg/kg are available from 1 January 2005 on an appropriately balanced geographical basis in order to permit the free circulation of new vehicles requiring these fuels whilst ensuring that CO<sub>2</sub> emissions reductions from new vehicles outweigh those additional emissions associated with the production of these fuels.
- (11) The complete penetration of petrol and diesel fuels with a maximum sulphur content of 10 mg/kg should be provided for from 1 January 2009 in order to allow the fuel manufacturing industry enough time to make the necessary investments to adapt its production plans. In addition, the full introduction of petrol and diesel fuels with a maximum sulphur content of 10 mg/kg from 1 January 2009 will reduce emissions of conventional pollutants from the existing fleet of vehicles leading to an improvement in air quality, whilst ensuring that there is no overall increase in greenhouse gas emissions. In this context it will be necessary to confirm this date in the case of diesel fuels no later than 31 December 2005.
- (12) In order to protect human health and/or the environment in specific agglomerations or in specific ecologically or environmentally sensitive areas with special pollution problems, Member States should be permitted, subject to a procedure established in this Directive, to require that fuels may be marketed only if they comply with more stringent environmental specifications, related to pollutants of concern, than those established under this Directive. This procedure is a derogation from the information procedure laid down in Directive 98/34/EC of the European Parliament and of the Council of 22 June 1998 laying down a procedure for the provision of information in the field of technical standards and regulations and of rules on information society services<sup>(1)</sup>.
- (13) The emissions from engines installed in non-road mobile machinery and agricultural and forestry tractors have to comply with the limits stipulated in Directive 97/68/EC of the European Parliament and of the Council of 16 December 1997 on the approximation of the laws of the Member States relating to measures against the emission of gaseous and particulate pollutants from internal combustion engines to be installed in non-road mobile machinery<sup>(2)</sup> and in Directive 2000/25/EC of the European Parliament and of the Council of 22 May 2000 on action to be taken against the emission of gaseous and particulate pollutants by engines intended to power agricultural or forestry tractors<sup>(3)</sup>. Attainment of these emission limits will become increasingly dependent upon the quality of the gas oils used by these engines and so it is important to include a definition for such fuels in Directive 98/70/EC.
- (14) It is appropriate to provide for a uniform system of fuel quality monitoring or national systems that ensure results of equivalent confidence and for systems of reporting in order to assess compliance with the mandated environmental fuel quality specifications.
- (15) A procedure should be laid down for updating the measurement methods used to ensure compliance with the mandated fuel quality specifications.
- (16) The measures necessary for the implementation of Directive 98/70/EC should be adopted in accordance with Council Decision 1999/468/EC of 28 June 1999 laying down procedures for the exercise of implementing powers conferred on the Commission<sup>(4)</sup>.
- (17) Provision should be made for a review of the provisions in Directive 98/70/EC in order to take account of new Community air quality legislation and related environmental objectives, such as the need to encourage alternative fuels, including biofuels, the development of new pollution abatement technologies and the impact of metallic additives and other relevant issues on their performance and to confirm, or otherwise, the date for full introduction of diesel fuels with a maximum sulphur content of 10 mg/kg in order to ensure that there is no overall increase in emissions of greenhouse gases.
- (18) A comprehensive review of alternative fuels, including biofuels, should be undertaken, including the discussion of the need for specific legislation.
- (19) Member States should lay down rules on penalties applicable to infringements of the provisions of Directive 98/70/EC and ensure that they are implemented.
- (20) Directive 98/70/EC should therefore be amended accordingly,

HAVE ADOPTED THIS DIRECTIVE:

#### Article 1

Directive 98/70/EC is hereby amended as follows:

- Article 2 shall be replaced by the following:

#### 'Article 2

#### Definitions

For the purposes of this Directive:

- "petrol" means any volatile mineral oil intended for the operation of internal combustion positive-ignition engines for the propulsion of vehicles and falling within CN codes 2710 11 41, 2710 11 45, 2710 11 49, 2710 11 51 and 2710 11 59 (\*);

<sup>(1)</sup> OJ L 204, 21.7.1998, p. 37; Directive as amended by Directive 98/48/EC (OJ L 217, 5.8.1998, p. 18).

<sup>(2)</sup> OJ L 59, 27.2.1998, p. 1. Directive as amended by Commission Directive 2001/63/EC (OJ L 227, 23.8.2001, p. 41).

<sup>(3)</sup> OJ L 173, 12.7.2000, p. 1.

<sup>(4)</sup> OJ L 184, 17.7.1999, p. 23.

2. "diesel fuels" means gas oils falling within CN code 2710 19 41 (\*) and used for self-propelling vehicles as referred to in Directive 70/220/EEC and Directive 88/77/EEC;

3. "gas oils intended for use by non-road mobile machinery and agricultural and forestry tractors" means any petroleum-derived liquid, falling within CN codes 2710 19 41 and 2710 19 45 (\*), intended for use in engines referred to in Directives 97/68/EC (\*\*) and 2000/25/EC (\*\*\*);

4. "outermost regions" means France with regard to the French overseas departments, Portugal with regard to the Azores and Madeira, and Spain with regard to the Canary Islands.

For Member States with arctic or severe winter conditions the maximum distillation point of 65 % at 250 °C for diesel fuels and gas oils may be replaced with a maximum distillation point of 10 % (vol/vol) at 180 °C.

(\*) The numbering of these CN codes as specified in the CCT, as amended by Commission Regulation (EC) No 2031/2001 (OJ L 279, 23.10.2001, p. 1).

(\*\*) OJ L 59, 27.2.1998, p. 1; Directive as amended by Commission Directive 2001/63/EC (OJ L 227, 23.8.2001, p. 41).

(\*\*\*) OJ L 173, 12.7.2000, p. 1.;

2. the following subparagraphs shall be added to Article 3(2):

'(d) Without prejudice to the provisions of subparagraph (c), Member States shall take all necessary measures to ensure that in due time, and no later than 1 January 2005, unleaded petrol with a maximum sulphur content of 10 mg/kg is marketed within their territories. Member States shall ensure that such unleaded petrol is available on an appropriately balanced geographical basis and complies in all other respects with the specifications set out in Annex III.

However, Member States may, for the outermost regions, make specific provisions for the introduction of petrol of a maximum sulphur content of 10 mg/kg. Member States making use of this provision shall inform the Commission accordingly. The Commission shall develop guidance for recommending what, for the purposes of this subparagraph, constitutes availability on an appropriately balanced geographical basis.

(e) By no later than 1 January 2009, Member States shall ensure that unleaded petrol may be marketed in their territory only if it complies with the environmental specification set out in Annex III except for the sulphur content which shall be a maximum of 10 mg/kg.;

3. in Article 4:

(a) the following subparagraphs shall be added to paragraph 1:

'(d) Without prejudice to the provisions of subparagraph (c), Member States shall take all necessary measures to ensure that in due time, and no later than 1 January 2005, diesel fuel with a maximum sulphur content of 10 mg/kg is marketed within their territories. Member States shall ensure that such diesel fuel is available on an appropriately balanced geographical basis and complies in all other respects with the specifications set out in Annex IV.

However, Member States may, for the outermost regions, make specific provisions for the introduction of diesel fuel of a maximum sulphur content of 10 mg/kg. Member States making use of this provision shall inform the Commission accordingly.

(e) By no later than 1 January 2009, Member States shall ensure, subject to the provisions of Article 9(1)(a), that diesel fuel may be marketed in their territory only if it complies with the environmental specification set out in Annex IV except for the sulphur content which shall be a maximum of 10 mg/kg.;

(b) the following paragraph shall be added:

'5. Member States shall ensure that gas oils intended for use by non-road mobile machinery and agricultural and forestry tractors marketed within their territory contain less than 2 000 mg/kg of sulphur. By 1 January 2008 at the latest, the maximum permissible sulphur content of gas oils intended for use by non-road mobile machinery and agricultural and forestry tractors shall be 1 000 mg/kg. However, Member States may require a lower limit or the same sulphur content for diesel fuels stipulated in this Directive.;

4. in Article 6:

(a) paragraph 1 shall be replaced by the following:

'1. By way of derogation from Articles 3, 4 and 5 and in accordance with Article 95(10) of the Treaty, a Member State may take measures to require that in specific areas, within its territory, fuels may be marketed only if they comply with more stringent environmental specifications than those provided for in this Directive for all or part of the vehicle fleet with a view to protecting the health of the population in a specific agglomeration or the environment in a specific ecologically or environmentally sensitive area in that Member State, if atmospheric or ground water pollution constitutes, or may reasonably be expected to constitute, a serious and recurrent problem for human health or the environment.;

(b) paragraph 3 shall be replaced by the following:

'3. The Member States involved shall provide the Commission with relevant environmental data for the agglomeration or area in question as well as the predicted effects on the environment of the measures proposed.';

(c) paragraphs 7 and 8 shall be deleted;

5. Article 8 shall be replaced by the following:

'Article 8

### Monitoring compliance and reporting

1. Member States shall monitor compliance with the requirements of Articles 3 and 4, in respect of petrol and diesel fuels, on the basis of the analytical methods referred to in European standards EN 228:1999 and EN 590:1999 respectively.

2. Member States shall establish a fuel quality monitoring system in accordance with the requirements of the relevant European standard. The use of an alternative fuel quality monitoring system may be permitted provided that such a system ensures results of equivalent confidence.

3. Each year by 30 June, the Member States shall submit a report of national fuel quality data for the preceding calendar year. The first report shall be submitted by 30 June 2002. From 1 January 2004, the format for this report shall be consistent with that described in the relevant European standard. In addition, Member States shall report the total volumes of petrol and diesel fuels marketed in their territories and the volumes of unleaded petrol and diesel fuels marketed with a maximum sulphur content of 10 mg/kg. Furthermore, Member States shall report annually on the availability on an appropriately balanced geographical basis of petrol and diesel fuels with a maximum sulphur content of 10 mg/kg that are marketed within their territory.

4. The Commission shall ensure that the information submitted pursuant to paragraph 3 is promptly made available by appropriate means. The Commission shall publish annually, and for the first time by 31 December 2003, a report on actual fuel quality in the different Member States and geographical coverage of fuels with a maximum sulphur content of 10 mg/kg, aiming to provide an overview of the fuels quality data in the different Member States.';

6. Article 9 shall be replaced by the following:

'Article 9

### Review process

1. By 31 December 2005 at the latest, the Commission shall review the fuel specifications of Annexes III and IV with the exception of sulphur content and propose amendments, if appropriate, in keeping with current and future

requirements of Community vehicle emission and air quality legislation and related objectives. In particular, the Commission shall consider:

(a) the necessity of any change to the end date for the full introduction of diesel fuel, with a maximum sulphur content of 10 mg/kg, in order to ensure that there is no overall increase in greenhouse gas emissions. This analysis shall consider developments in refinery processing technologies, expected fuel economy improvements of vehicles and the rate at which new fuel-efficient technologies are introduced into the vehicle fleet;

(b) the implications of new Community legislation setting air quality standards for substances such as polycyclic aromatic hydrocarbons;

(c) the outcome of the review described in Article 10 of Council Directive 1999/30/EC of 22 April 1999 relating to limit values for sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter and lead in ambient air (\*);

(d) the outcome of the review of the various commitments by the Japanese (\*\*), Korean (\*\*\*) and European (\*\*\*\*) automobile manufacturers to reduce the fuel consumption and carbon dioxide emissions of new passenger cars in the light of the fuel quality changes introduced by this Directive and progress towards the Community target of 120 g/km CO<sub>2</sub> emissions for the average vehicle;

(e) the outcome of the review required by Article 7 of Directive 1999/96/EC of the European Parliament and of the Council of 13 December 1999 on the approximation of the laws of the Member States relating to measures to be taken against the emission of gaseous and particulate pollutants from compression ignition engines for use in vehicles, and the emission of gaseous pollutants from positive ignition engines fuelled with natural gas or liquefied petroleum gas for use in vehicles and amending Council Directive 88/77/EEC (\*\*\*\*\*) and the confirmation of the mandatory NO<sub>x</sub> emission standard for heavy duty engines;

(f) the effective functioning of new pollution abatement technologies and the impact of metallic additives and other relevant issues on their performance and developments affecting international fuel markets;

(g) the need to encourage the introduction of alternative fuels, including biofuels, as well as the need to introduce modifications to other parameters in the fuel specifications, both for conventional and for alternative fuels, for example the modifications to the maximum volatility limits for petrol contained in this Directive required for their application to blends of bioethanol with petrol and any subsequent necessary changes to EN 228:1999.



2. When considering its proposal for the next stage of emission standards for compression ignition engines in non-road applications, the Commission shall establish in parallel the required fuel quality. In so doing, the Commission shall take into account the importance of the emissions from this sector, the overall environmental and health benefits, the implications in the Member States regarding fuel distribution and the costs and benefits of a more restrictive sulphur level than is currently required for fuel used in compression ignition engines in non-road applications, and shall then align appropriate fuel quality requirements for non-road applications with the on-road sector by a certain date, currently expected to be 1 January 2009, to be confirmed or amended by the Commission in its review in 2005.

3. In addition to the provisions of paragraph 1 the Commission may, *inter alia*, bring forward:

— proposals taking into consideration the particular situation of captive fleets and the need to propose levels of specifications for the special fuels they use,

— proposals setting levels of specifications applicable to liquid petroleum gas, natural gas and biofuels.

(\*) OJ L 163, 29.6.1999, p. 41; Directive as amended by Commission Decision 2001/744/EC (OJ L 278, 23.10.2001, p. 35).

(\*\*) OJ L 100, 20.4.2000, p. 57.

(\*\*\*) OJ L 100, 20.4.2000, p. 55.

(\*\*\*\*) OJ L 40, 13.2.1999, p. 49.

(\*\*\*\*\*) OJ L 44, 16.2.2000, p. 1.;

7. the following Article shall be inserted:

'Article 9a

### Penalties

Member States shall determine the penalties applicable to breaches of the national provisions adopted pursuant to this Directive. The penalties determined must be effective, proportionate and dissuasive.;

8. the first subparagraph of Article 10 shall be replaced by the following:

'1. The measurement methods to be applied in relation to the parameters specified in Annexes I and III shall be those analytical methods set out in European standard EN 228:1999. The measurement methods to be applied in relation to the parameters specified in Annexes II and IV shall be those analytical methods set out in European standard EN 590:1999. Member States may adopt the analytical methods specified in replacement EN 228:1999 or EN

590:1999 standards, as appropriate, if they can be shown to give at least the same accuracy and at least the same level of precision as the analytical methods they replace. In the event that adaptation of the permitted analytical methods to technical progress is necessary, amendments may be adopted by the Commission in accordance with the procedure referred to in Article 11(2).';

9. Article 11 shall be replaced by the following:

'Article 11

### Committee procedure

1. The Commission shall be assisted by the Committee established in accordance with Article 12 of Directive 96/62/EC (\*).

2. Where reference is made to this paragraph, Articles 5 and 7 of Council Decision 1999/468/EC of 28 June 1999 laying down procedures for the exercise of implementing powers conferred upon the Commission (\*\*) shall apply, having regard to the provisions of Article 8 thereof.

The period laid down in Article 5(6) of Decision 1999/468/EC shall be set at three months.

3. The Committee shall adopt its Rules of Procedure.

(\*) OJ L 296, 21.11.1996, p. 55.

(\*\*) OJ L 184, 17.7.1999, p. 23.;

10. Annexes I to IV shall be replaced by the text in the Annex to this Directive.

### Article 2

Member States shall adopt and publish the laws, regulations and administrative provisions necessary to comply with this Directive by 30 June 2003. They shall forthwith inform the Commission thereof.

Member States shall apply these measures from 1 January 2004.

When Member States adopt these measures, they shall contain a reference to this Directive or be accompanied by such a reference on the occasion of their official publication. The methods of making such a reference shall be laid down by the Member States.

### Article 3

This Directive shall enter into force on the day of its publication in the *Official Journal of the European Union*.

*Article 4*

This Directive is addressed to the Member States.

Done at Brussels, 3 March 2003.

*For the European Parliament*

*The President*

P. COX

*For the Council*

*The President*

A.-A. TSOCHATZOPOULOS

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## ANNEX

## 'ANNEX I

## ENVIRONMENTAL SPECIFICATIONS FOR MARKET FUELS TO BE USED FOR VEHICLES EQUIPPED WITH POSITIVE-IGNITION ENGINES

Type: **Petrol**

Parameter <sup>(1)</sup>	Unit	Limits <sup>(2)</sup>	
		Minimum	Maximum
Research octane number		95 <sup>(3)</sup>	—
Motor octane number		85	—
Vapour pressure, summer period <sup>(4)</sup>	kPa	—	60,0 <sup>(5)</sup>
Distillation:			
— percentage evaporated at 100 °C	% v/v	46,0	—
— percentage evaporated at 150 °C	% v/v	75,0	—
Hydrocarbon analysis:			
— olefins	% v/v	—	18,0 <sup>(6)</sup>
— aromatics	% v/v	—	42,0
— benzene	% v/v	—	1,0
Oxygen content	% m/m	—	2,7
Oxygenates			
— Methanol (stabilising agents must be added)	% v/v	—	3
— Ethanol (stabilising agents may be necessary)	% v/v	—	5
— Iso-propyl alcohol	% v/v	—	10
— Tert-butyl alcohol	% v/v	—	7
— Iso-butyl alcohol	% v/v	—	10
— Ethers containing five or more carbon atoms per molecule	% v/v	—	15
— Other oxygenates <sup>(7)</sup>	% v/v	—	10
Sulphur content	mg/kg	—	150
Lead content	g/l	—	0,005

<sup>(1)</sup> Test methods shall be those specified in EN 228:1999. Member States may adopt the analytical method specified in replacement EN 228:1999 standard if it can be shown to give at least the same accuracy and at least the same level of precision as the analytical method it replaces.

<sup>(2)</sup> The values quoted in the specification are "true values". In the establishment of their limit values, the terms of ISO 4259 "Petroleum products - Determination and application of precision data in relation to methods of test" have been applied and in fixing a minimum value, a minimum difference of 2R above zero has been taken into account (R = reproducibility). The results of individual measurements shall be interpreted on the basis of the criteria described in ISO 4259 (published in 1995).

<sup>(3)</sup> Unleaded regular grade petrol may be marketed with a minimum motor octane number (MON) of 81 and a minimum research octane number (RON) of 91.

<sup>(4)</sup> The summer period shall begin no later than 1 May and shall not end before 30 September. For Member States with arctic or severe winter conditions, the summer period shall begin no later than 1 June and shall not end before 31 August.

<sup>(5)</sup> For Member States with arctic or severe winter conditions the vapour pressure shall not exceed 70 kPa during the summer period.

<sup>(6)</sup> Unleaded regular grade petrol may be marketed with a maximum olefin content of 21 % v/v.

<sup>(7)</sup> Other mono-alcohols and ethers with a final boiling point no higher than that stated in EN 228:1999.

## ANNEX II

**ENVIRONMENTAL SPECIFICATIONS FOR MARKET FUELS TO BE USED FOR VEHICLES EQUIPPED WITH  
COMPRESSION IGNITION ENGINES**

Type: **Diesel fuel**

Parameter <sup>(1)</sup>	Unit	Limits <sup>(2)</sup>	
		Minimum	Maximum
Cetane number		51,0	—
Density at 15 °C	kg/m <sup>3</sup>	—	845
Distillation:			
— 95% (v/v) recovered at	°C	—	360
Polycyclic aromatic hydrocarbons	% m/m	—	11
Sulphur content	mg/kg	—	350

<sup>(1)</sup> Test methods shall be those specified in EN 590:1999. Member States may adopt the analytical method specified in replacement EN 590:1999 standard if it can be shown to give at least the same accuracy and at least the same level of precision as the analytical method it replaces.

<sup>(2)</sup> The values quoted in the specification are "true values". In the establishment of their limit values, the terms of ISO 4259 "Petroleum products - Determination and application of precision data in relation to methods of test" have been applied and in fixing a minimum value, a minimum difference of 2R above zero has been taken into account (R = reproducibility). The results of individual measurements shall be interpreted on the basis of the criteria described in ISO 4259 (published in 1995).



## ANNEX III

## ENVIRONMENTAL SPECIFICATIONS FOR MARKET FUELS TO BE USED FOR VEHICLES EQUIPPED WITH POSITIVE-IGNITION ENGINES

Type: **Petrol**

Parameter (1)	Unit	Limits (2)	
		Minimum	Maximum
Research octane number		95 (3)	—
Motor octane number		85	—
Vapour pressure, summer period (4)	kPa	—	60,0 (5)
Distillation:			
— percentage evaporated at 100 °C	% v/v	46,0	—
— percentage evaporated at 150 °C	% v/v	75,0	—
Hydrocarbon analysis:			
— olefins	% v/v	—	18,0
— aromatics	% v/v	—	35,0
— benzene	% v/v	—	1,0
Oxygen content	% m/m	—	2,7
Oxygenates			
— methanol (stabilising agents must be added)	% v/v	—	3
— ethanol (stabilising agents may be necessary)	% v/v	—	5
— iso-propyl alcohol	% v/v	—	10
— tert-butyl alcohol	% v/v	—	7
— iso-butyl alcohol	% v/v	—	10
— ethers containing 5 or more carbon atoms per molecule	% v/v	—	15
— Other oxygenates (6)	% v/v	—	10
Sulphur content	mg/kg	—	50
	mg/kg	—	10 (7)
Lead content	g/l	—	0,005

(1) Test methods shall be those specified in EN 228:1999. Member States may adopt the analytical method specified in replacement EN 228:1999 standard if it can be shown to give at least the same accuracy and at least the same level of precision as the analytical method it replaces.

(2) The values quoted in the specification are "true values". In the establishment of their limit values the terms of ISO 4259 "Petroleum products - Determination and application of precision data in relation to methods of test" have been applied and in fixing a minimum value, a minimum difference of 2R above zero has been taken into account (R = reproducibility). The results of individual measurements shall be interpreted on the basis of the criteria described in ISO 4259 (published in 1995).

(3) Member States may decide to continue to permit the marketing of unleaded regular grade petrol with a minimum motor octane number (MON) of 81 and a minimum research octane number (RON) of 91.

(4) The summer period shall begin no later than 1 May and shall not end before 30 September. For Member States with arctic or severe winter conditions, the summer period shall begin no later than 1 June and shall not end before 31 August.

(5) For Member States with arctic or severe winter conditions, the vapour pressure shall not exceed 70 kPa during the summer period.

(6) Other mono-alcohols and ethers with a final boiling point no higher than that stated in EN 228:1999.

(7) In accordance with Article 3(2), by no later than 1 January 2005 unleaded petrol with a maximum sulphur content of 10 mg/kg must be marketed and be available on an appropriately balanced geographical basis within the territory of a Member State. By 1 January 2009 all unleaded petrol marketed in the territory of a Member State must have a maximum sulphur content of 10 mg/kg.

## ANNEX IV

## ENVIRONMENTAL SPECIFICATIONS FOR MARKET FUELS TO BE USED FOR VEHICLES EQUIPPED WITH COMPRESSION IGNITION ENGINES

Type: Diesel fuel

Parameter <sup>(1)</sup>	Unit	Limits <sup>(2)</sup>	
		Minimum	Maximum
Cetane number		51,0	—
Density at 15 °C	kg/m <sup>3</sup>	—	845
Distillation:			
— 95 % (v/v) recovered at	°C	—	360
Polycyclic aromatic hydrocarbons	% m/m	—	11
Sulphur content	mg/kg	—	50
	mg/kg	—	10 <sup>(3)</sup>

<sup>(1)</sup> Test methods shall be those specified in EN 590:1999. Member States may adopt the analytical method specified in replacement EN 590:1999 standard, if it can be shown to give at least the same accuracy and at least the same level of precision as the analytical method it replaces.

<sup>(2)</sup> The values quoted in the specification are "true values". In the establishment of their limit values the terms of ISO 4259 "Petroleum products - Determination and application of precision data in relation to methods of test" have been applied and in fixing a minimum value, a minimum difference of 2R above zero has been taken into account (R = reproducibility). The results of individual measurements shall be interpreted on the basis of the criteria described in ISO 4259 (published in 1995).

<sup>(3)</sup> In accordance with Article 4(1), by no later than 1 January 2005 diesel fuel with a maximum sulphur content of 10 mg must be marketed and be available on an appropriately balanced geographical basis within the territory of a Member State. In addition, and subject to the review in Article 9(1), by 1 January 2009 all diesel fuel marketed in the territory of a Member State must have a maximum sulphur content of 10 mg/kg.