



SETTING NATIONAL FUEL QUALITY STANDARDS

*Proposed Standards for Fuel Parameters
(Petrol and Diesel)*

REVISED COMMONWEALTH POSITION



Natural Heritage Trust

Helping Communities Helping Australia

September 2000



Natural Heritage Trust

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This work was funded by the Commonwealth Government's Natural Heritage Trust and prepared by the Department of the Environment and Heritage.

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INTRODUCTION

Fuel quality has been identified as having a significant influence on emissions from the transport sector and has been a key constraint to the introduction of new vehicle emission standards in Australia. The Commonwealth is seeking to finalise its proposal for national fuel quality standards for petrol and diesel.

In May 2000, Environment Australia released three discussion papers to facilitate public consultation on the setting of proposed national fuel quality standards –

1. Summary Report of the Review of Fuel Quality Requirements for Australian Transport;
2. Proposed Standards for Fuel Parameters (Petrol and Diesel); and
3. Proposed Model for Standards Implementation.

During the two-month public consultation period during May and June, a Commonwealth consultation team met with key stakeholders to discuss issues of concern relating to the proposed standards. The Commonwealth team consisted of representatives from Environment Australia, the Department of Industry, Science and Resources, the Department of Transport and Regional Services and the Australian Greenhouse Office.

The formal public consultation period on the Commonwealth's proposal for petrol and diesel fuel quality standards closed on 30 June 2000. We received 36 submissions.

REVISED POSITION

The Commonwealth has now revised its preliminary position. This revised position is released as an 'officials' paper. The revised standards are summarised in Table 1. A comparison between the preliminary proposal and the revised proposal with a short explanation of the rationale behind any changes is provided at [Attachment A](#).

In general terms the revised position harmonises:

- petrol standards with Euro 2 in 2002 and Euro 3 in 2005; and
- diesel standards with Euro 2 in 2002 and Euro 3 in 2006 (except for sulfur in diesel which harmonises with Euro 4 in 2006).

Exceptions to this approach occur where:

- standards have been set to lock in air quality gains already achieved by current industry performance;
- flexibility is required in the transitional period (2002 to 2005/6); and
- Australian market needs differ from those in Europe.

Unresolved timing issues

Two issues remain to be resolved. These are the timing of the introduction of the Euro 2 sulfur standard for diesel, and of the Euro 3 benzene standard for petrol. While the revised position suggests that they should occur at the same time as the other specification changes (ie January 2002 and January 2005 respectively), other dates have also been proposed and stakeholder comment on these dates is requested.

- **500ppm sulfur in diesel**

The *Measures for a Better Environment* (MBE) initiative stated that the diesel sulfur standard would be set at 500ppm by the *end* of 2002. It also noted that there would be negotiation with the oil majors for the early voluntary introduction of 500ppm sulfur diesel in urban areas in 2000.¹ In addition, MBE stated that Euro 2 emission standards (which require sulfur diesel levels at or below 500ppm) for all new diesel vehicles, and Euro 3 emission standards (which require sulfur diesel levels at or below 350ppm) for new medium and heavy diesel vehicles, would be introduced in 2002. In 1999 new Australian Design Rules (ADRs) were gazetted to give effect to these emission standards from 1 January 2002.

The preliminary Commonwealth position proposed that the 500ppm diesel sulfur standard should take effect from 1 January 2002 to ensure that fuel of the appropriate quality was available from the date the ADRs took effect. In response to this proposal, some refiners have advised that their planning for the introduction of 500ppm sulfur diesel has been undertaken on the basis of the MBE timetable, and that they would have significant difficulties in meeting the 'advanced' timetable. They have submitted that the MBE timetable should be retained.

- **1% benzene in petrol**

In general the revised position proposes harmonisation with Euro 2 petrol standards in 2002 and Euro 3 in 2005. In the case of benzene, the Euro 2 standard is 5%. The Australian refining industry average is already lower than this value (2.58% - ULP and 3.29% - PULP in 1998). It is considered that a better environmental outcome will be achieved by not formally harmonising with Euro 2 in 2002 but by having benzene levels managed in the first instance through State and Territory legislation² and negotiation of 'best endeavours' targets.

The preliminary position proposed a standard of 2% in 2005. Many stakeholders argued for adoption of the Euro 3 standard ie 1%. However refinery investment to lower benzene levels is the largest capital expenditure after the investment to reduce sulfur. There is, therefore, concern that some refineries will have significant difficulty in meeting the Euro 3 standard in 2005. It has been suggested that the Euro 3 standard, while it should remain a target, should be deferred for a number of years (ie introduced some time after 2005).

¹ To date no 500ppm sulfur diesel has been made available on the Australian market on a voluntary basis. It has, however, been required by legislation in Western Australia (from 1 January 2000) and in Queensland (from 15 July 2000).

² Western Australian regulations currently limit the benzene content of petrol to a maximum of 2% by volume. This limit will be reduced to 1% v/v from 2001. In Queensland petrol benzene content is currently limited by regulation to 3.5% by volume (as an average over 6 months or over 6 consecutive batches).

Table 1: Summary of revised Commonwealth proposal for fuel quality standards

PETROL

1 January 2002	
Research octane number	ULP: 91 RON (min) PULP: 95 RON (min)
Motor octane number	No standard is proposed.
Reid vapour pressure	No standard is proposed. Management by State and Territories
Olefins	All grades: 18% v/v pool average over 6 months with a cap of 20% v/v
Aromatics	All grades: 45% v/v pool average over 6 months with a cap of 48% v/v
Benzene	No standard is proposed. Management by State and Territories and/or negotiation of 'best endeavours' targets.
Lead	All grades: 0.005g/L
Sulfur	ULP - 500 ppm (max) PULP - 150 ppm (max)
Oxygen content	2.7% (max) with an exemption for ethanol blends up to 10%.
Phosphorus	PULP & ULP: 0.0013g/L (max)
1 January 2005	
Distillation	All grades: FBP 210 ⁰ C (max)
Olefins	All grades: 18% max v/v
Aromatics	All grades: 42% v/v pool average over 6 months with a cap of 45% v/v
Benzene	All grades: 1% max v/v
Sulfur	All grades: 150 ppm
1 January 2007	
Sulfur	All grades: 50 ppm
To be reviewed in 2002, finalised in 2003 and implemented in 2008/10	
Aromatics	
Sulfur	All grades: 30 ppm (or lower)

DIESEL

1 January 2002	
Sulfur	500 ppm
Cetane index	46 (min)
Density	820 to 860 kg/m ³
Distillation T95	370 ⁰ C (max)
Ash & suspended solids	100ppm (max)
Viscosity	2.0 to 4.5 cSt
1 January 2006	
Sulfur	50 ppm
Density	820 to 850 kg/m ³
Distillation	360 ⁰ C (max)
PAHs	11% m/m (max)
To be reviewed in 2002, finalised in 2003 and implemented in 2008/10	
Sulfur	30 ppm (or lower)

Guiding principles

In developing its revised position, the Commonwealth has been cognisant of the guiding principles set out in the original discussion papers to ensure a balance is achieved between the need for cleaner fuels in Australia and a sustainable domestic refining industry. The guiding principles are:

1. Fuel standards are intended to manage those fuel qualities/parameters that are known to have the potential to impact adversely on the environment.
2. Fuel standards should be compatible with relevant international or internationally accepted standards in order not to impede competition and trade.
3. Fuel standards are intended to be mandated and implemented on a national basis. In particular, fuel standards that are technology enabling must apply nationally. Local environmental circumstances may, however, dictate variation within the national standard to achieve environmental outcomes.
 - Consideration will be given to State by State establishment of fuel standards that address airshed specific environmental conditions, however, in such cases a national standard will be determined as a default.
4. Fuel standards will apply to, and be enforced equally in respect of, imports as well as domestically produced petroleum fuels.
 - Fuel standards must not impede competition, either between Australian refiners, or with imported refined product.
5. Fuel standards that directly address environmental or health issues will be determined on the basis of Australian-specific requirements. In such instances, harmonisation with European specifications may be neither necessary nor desirable.
6. The timetable for the introduction of new fuel standards will be based on Australian requirements. Harmonisation, in terms of timing, will not be based on European or any other regional timetable, except where there is a previous policy decision to this effect or the standard is technology enabling and the need for such harmonisation is clearly demonstrated.
7. Consideration will be given to setting standards that provide, as far as possible, flexibility in terms of compliance.
 - Flexibility provisions must not impede competition or trade; and
 - Flexibility provisions must not add significantly to legislative/regulatory complexity or implementation/enforcement costs to Government.

ISSUES OF CONCERN

As a result of the face to face meetings and written submissions from stakeholders, the following issues were identified as significant.

- **Sulfur standards:**
In the case of diesel, the proposal to bring forward by 12 months the timing for the 500 ppm sulfur standard from that set out in the *Measures for a Better Environment* (MBE) tax package;
In the case of petrol, the proposal to introduce the Euro 3 sulfur standard (150 ppm) for all grades in 2002. There was also concern about the proposal to introduce a 50 ppm sulfur standard (ie Euro 4) in 2005 when no decision had been made to introduce the Euro 4 vehicle emission standards.
- **Transitional flexibility:**
Concern was expressed about the refining industry's capacity to meet the timetable for the introduction of tighter standards. It has been argued that there should be a transitional period (effectively between 2002 and 2005/6) which incorporates greater flexibility for some standards than initially proposed.
- **State regulations:**
Many stakeholders sought clarification on the relationship between the proposed Commonwealth fuel quality standards and those set by States and Territories.
- **Octane levels and NAFC targets:**
Concerns were raised in relation to the proposal for two grades of petrol (ULP and PULP) and the effects this might have on achieving NAFC targets. In particular the possible misfuelling of cars designed to use 95 RON fuel where the price differential favours 91 RON.
- **Pool averaging:**
Stakeholders were mixed in their views on the use of pool averaging to achieve standards for some parameters.
- **Fuel additives:**
Concerns were raised about the practicality of the approach proposed for the management of fuel additives. Attention was drawn to the extremely large number of additives already on the market and to the fact that many additives are also used in the refining process.
- **Ethanol:**
It was pointed out that the oxygen content standard proposed for petrol would effectively remove the E10 petrol blends already on the market.
- **Financial incentives:**
Attention was drawn to the financial incentives for the early production of ultra low sulfur diesel included in MBE and that a similar measure could also be used to encourage the production of cleaner petrol.
- **Operability standards:**
There was widespread consensus that standards should be set for both 'environmental' and 'operability' parameters, and that this should be done in a single instrument.

- **LPG standards:**

There was a call for the development of standards for LPG.

NATIONAL FUEL QUALITY STANDARDS BILL 2000

The National Fuel Quality Standards Bill 2000 was introduced into the Commonwealth Parliament on 7 September 2000. The Bill, the Explanatory Memorandum (which includes the Regulation Impact Statement) and the Second Reading Speech are available on the Parliament House website at www.aph.gov.au.

The Bill has five parts. Part 1 is a preliminary part, and Part 2 deals with the regulation of fuel and fuel additives. Part 3 sets out an enforcement regime for the purpose of monitoring compliance with the Act and prosecuting offences under the Act. Part 4 sets out record keeping and reporting obligations which apply to the supply or import of fuels which are the subject of a fuel standard. Part 5 deals with other matters including review of decisions under the Act, annual reporting by the Minister and periodic review of the operation of the Act.

Relationship with State/Territory standards

The Commonwealth Act is intended to provide for uniform national application of standards. In general where the Commonwealth has specified a standard in respect of a fuel parameter, the Commonwealth standard will operate to the exclusion of a State or Territory standard in respect of the same parameter. The regulations will specify the extent to which State or Territory laws are excluded. This is in order to be able to accurately reflect the field which the Commonwealth standards occupy.

The Act is not intended to exclude or limit the operation of any State or Territory law that is capable of operating concurrently with the Act, except to the extent that the regulations provide for a State and Territory law relating to the supply of fuel to be excluded. (See Part 1 Clause 9 of the Bill.)

Operability standards

In recognition of the widespread consensus that operability standards should also be developed, the objects of the Bill have been drafted to accommodate this requirement.

The main objects of the Bill are to regulate the quality of fuel to:

- reduce pollutants and emissions arising from the use of fuel that may cause environmental, greenhouse and health problems;
- facilitate the adoption of better engine and emission control technologies; and
- allow the more effective operation of engines.

(See Part 1 Clause 3 of the Bill.)

Additives

As noted above, Part 2 of the Bill deals with additives. The Commonwealth discussion paper proposed that additive use in petrol and diesel be prohibited without the written approval of the Minister, involving an agreed testing and verification process. Following further consideration of the best means of managing additives, this position has been revised. A large number of additives are currently used in fuels eg detergents, which are commonly accepted as environmentally benign, if not

beneficial. Under the Bill, the supply of additives is now only affected if the Commonwealth Minister has included them in a list of prohibited additives.

The listing of an additive will only be possible following a formal notification and investigation process, on the basis of which the Minister will determine whether an additive should be prohibited. The Minister will be required to issue guidelines when determining whether to list an additive. The Minister's decision will be appealable. (See Part 2 Division 8 Clauses 32-36 of the Bill.)

The Commonwealth is in the process of considering an application from Mobil to use the additive Cleanerburn in 1300 ppm sulfur diesel, as an alternative to producing 500 ppm sulfur diesel. This issue is not precisely analogous to the general additive issues (in general an additive would only be considered for listing by the Minister after the Commonwealth had formed the opinion that there were reasons to prohibit its use). The Commonwealth will, however, effectively treat its consideration of Cleanerburn as a dry run of the protocols for consideration of additives generally. A protocol is currently under development for the assessment of Cleanerburn.

OCTANE ENHANCERS/OXYGENATES

As noted in Discussion Paper 2, the Commonwealth commissioned a review of chemical octane enhancers to inform its position on their management and use in petrol. This independent literature review and analysis is now complete and will shortly be published. It will be accompanied by a short discussion paper outlining the Commonwealth's response to the findings of the review and presenting a preliminary position for the management of these products.

COMMENT ON REVISED PROPOSAL

Written comments are requested on this revised proposal for petrol and diesel by no later than **Friday 13 October 2000**.

While comments are welcome on any matters discussed in the paper, attention should be given to the unresolved timing issues identified earlier, and to the specific issues raised in Attachment A, ie:

1. The date for the introduction of the Euro 2 diesel sulfur specification (500ppm) is currently proposed as 1 January 2002. The date identified in MBE was "the end of 2002".
2. It has been suggested that the date for the introduction of the Euro 3 petrol benzene specification should be deferred from the proposed date of 2005 due to the significant investment required to lower benzene to this level and the challenge it presents to a number of refineries.
3. No sulfur content has been specified for Lead Replacement Petrol. Two options are available - 500 ppm (Euro 2) or 150 ppm (Euro 3).
4. One of the concerns that has been raised in relation to the proposed use of Cleanerburn (in place of meeting the 500 ppm sulfur standard) is the potential impact of the higher sulfur levels (in the order of 1300ppm) on light duty diesel vehicles equipped with oxidation catalysts. Advice is sought on the number of light duty diesel vehicles likely to be operating in Australia in the period January

2002 to January 2006 that will require oxidation catalysts to meet Euro 2 emissions standards.

Please mail, fax or email your comments to:

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REVISED COMMONWEALTH POSITION ON NATIONAL FUEL QUALITY STANDARDS

PETROL			
Parameter	Initial proposal	Revised proposal	Comment
Sulfur	All grades: 1 Jan 2002: 150 ppm 1 Jan 2005/6: 50 ppm 1 Jan 2008: 30 ppm	1 Jan 2002: ULP 500 ppm PULP 150 ppm 1 Jan 2005: All grades 150 ppm 1 Jan 2007: All grades 50 ppm	<p>(a) The original proposal to harmonise with the Euro 3 standard in 2002 has been modified. The new position is consistent with harmonisation with Euro 2 in 2002. However, the Euro 3 standard has been retained for PULP in 2002 to facilitate the early introduction of Euro 3 vehicles. The outstanding issue to be resolved is the sulfur content desirable in Lead Replacement Petrol.</p> <p>(b) The original proposal to harmonise with the Euro 4 standard in 2005 has been modified. The new position is consistent with harmonisation with Euro 3 in 2005.</p> <p>(c) Feedback from the refining industry indicated that 6 to 12 months would be required after the production of 50 ppm diesel before production of 50 ppm petrol could commence. This is because for most refineries the cost effective route to achieve 50 ppm sulfur petrol is to utilise the existing diesel desulfurisation plant, once it is replaced by new plant to produce 50 ppm sulfur in diesel. The new position proposes 50 ppm diesel in 2006 followed by 50 ppm petrol in 2007.</p> <p>(d) If Australia is to harmonise with international standards, overseas trends toward sulfur reduction should be noted. There is a general move internationally to reduce sulfur levels to 30 ppm and below and it will be important to revisit this issue in 2002 to determine sulfur levels required after 2007.</p>
Stakeholder feedback requested: No sulfur content has been specified for Lead Replacement Petrol. Two options are available - 500 ppm (Euro 2) or 150 ppm (Euro 3).			
Research octane number (RON)	1 Jan 2002 ULP 91 RON (min) PULP 95 RON (min)	1 Jan 2002 ULP 91 RON (min) PULP 95 RON (min)	The original proposal is unchanged.
Motor octane number (MON)	1 Jan 2002 ULP 81 (min) PULP 85 (min).	No standard is proposed.	Although the World Wide Fuel Charter recommends a standard for MON, some stakeholders indicated that MON is an outdated parameter due to changes in vehicle technology. Increasing MON also incurs an octane penalty.

Parameter	Initial proposal	Revised proposal	Comment
Reid vapour pressure	1 Jan 2002: 67kPa (All grades) (Default standard only where States/Territories do not regulate.)	No standard is proposed.	The original proposal has been modified. As States and Territories are effectively managing this issue already (or will be in the near future), it is proposed that the Commonwealth will not manage RVP levels and they will continue to be managed by State and Territory legislation.
Distillation	1 Jan 2005: FBP 210 ⁰ C (max)	1 Jan 2005: FBP 210 ⁰ C (max)	The original proposal is unchanged.
Olefins	All grades: 1 Jan 2002 - 18% max by vol 1 Jan 2005 - 16% max by vol	All grades: 1 Jan 2002 - 18% pool average over 6 months with a cap of 20%. 1 Jan 2005 - 18% max by vol	(a) The original proposal for 2002 has been modified. A pool average and cap is proposed for the standard in 2002 to provide flexibility during the transitional period leading up to harmonisation with Euro 3 in 2005. (b) The original proposal for 2005 has been modified to harmonise with Euro 3.
Aromatics	All grades: 1 Jan 2002: 45% max by vol 1 Jan 2005: 42% max by vol 1 Jan 2008/10: 38% max by vol	All grades: 1 Jan 2002: 45% pool average over 6 months with a cap of 48% 1 Jan 2005: 42% pool average over 6 months with a cap of 45%	(a) The original proposal for 2002 has been modified. A pool average and cap is proposed for the standard in 2002 to provide flexibility during the transitional period leading up to harmonisation with Euro 3 in 2005. (b) The original proposal for 2005 has been modified. While based on harmonisation with Euro 3 (42%), additional flexibility has been included in the form of an average and cap in recognition of the fact that European standards are based on the permitted use of MTBE. Consideration is currently being given to banning the use of MTBE in Australia. (c) The levels required from 2008 will be reviewed in 2002 with a decision on the standard finalised by the end of 2003.

Parameter	Initial proposal	Revised proposal	Comment
Benzene	All grades 1 Jan 2002: 3% max by vol 1 Jan 2005: 2% max by vol	All grades 1 Jan 2002: No standard is proposed. 1 Jan 2005: 1% max by vol	(a) The original proposal for 2002 has been modified. The Commonwealth does not propose to set a standard harmonising benzene levels with the Euro 2 specifications (5%) as the industry average is already substantially lower (2.58% in ULP and 3.29% in PULP). A better environmental outcome will be achieved by having benzene levels managed in this interim period through State and Territory legislation and negotiation with suppliers of 'best endeavours' targets. (b) The original proposal for 2005 has been modified to harmonise with Euro 3. (c) Refinery investment to lower benzene levels is the largest capital expenditure for the industry after the investment to reduce sulfur. There is concern that some refineries will have significant difficulty in meeting the Euro 3 standard in 2005, and that the introduction of the standard should be deferred for one or more years.
Lead	All grades 1 Jan 2002: 0.013g/L (max) 1 Jan 2005: 0g/L	All grades 1 Jan 2002: 0.005g/L (max)	The original proposal has been modified to better reflect refinery levels already achieved. The new position is consistent with Euro 3.
Oxygen content	All grades 1 Jan 2002: 2.7% (max) by mass	All grades 1 Jan 2002: 2.7% (max) by mass (with an exemption for ethanol blends up to 10%)	(a) The original proposal is unchanged and represents harmonisation with Euro 3 in 2002. (b) An exemption is provided to accommodate ethanol blends of up to 10%. Any such blends would still be required, however, to meet the RVP standards set by State and Territory legislation.
Phosphorus	Not initially proposed	For ULP and PULP 1 Jan 2002: 0.0013g/L (max)	(a) Concern has been expressed that, as phosphorus affects catalysts and engine performance, levels should be controlled. As there is no Euro standard for phosphorus, the proposed standard provides for unavoidable trace levels only and is consistent with the current Australian Standard. (b) The standard would not apply to Lead Replacement Petrol to accommodate anti valve seat recession additives (AVSRs) which contain phosphorus.

DIESEL			
Parameter	Initial proposal	Revised proposal	Comment
Sulfur	1 Jan 2002: 500 ppm 1 Jan 2006: 50 ppm 1 Jan 2008: 30 ppm	1 Jan 2002: 500 ppm 1 Jan 2006: 50 ppm 1 Jan 2008: To be revisited in 2002	<p>(a) The original proposal for 2002 is unchanged. Concern has been expressed about the change in timing from that set out in <i>Measures for a Better Environment</i> (ie December 2002). The earlier date presents a significant challenge for some refineries, and in particular Mobil has advised that it will not be able to produce 500 ppm sulfur diesel by January 2002.</p> <p>(b) Mobil has proposed the use of a fuel additive called Cleanerburn as an alternative to meeting the 500 ppm sulfur standard. Mobil advise that Cleanerburn contains a combustion improver that provides immediate and sustained reductions in diesel particle emissions equivalent to that achieved by reducing fuel sulfur to below 500 ppm. The Commonwealth is currently developing a protocol to assess the use of Cleanerburn as an alternative to meeting the 500 ppm standard in 2002.</p> <p>(c) The levels required from 2008 will be reviewed in 2002 with a decision on the standard finalised by the end of 2003.</p>
Stakeholder feedback requested: One of the concerns that has been raised in relation to the proposed use of Cleanerburn in place of the 500 ppm sulfur standard is the potential impact of the higher sulfur levels on light duty diesel vehicles equipped with oxidation catalysts. Advice is sought on the number of light duty diesel vehicles likely to be operating in Australia in the period January 2002 to January 2006 that will require oxidation catalysts to meet Euro 2 emissions standards.			
Cetane Index	1 Jan 2002: 47 (min) index 1 Jan 2006: 50 (min) index	1 Jan 2002: 46 (min) index	<p>(a) The original proposal for 2002 has been modified to harmonise with Euro 2. A standard is only being set for cetane index and not number, as the latter cannot be measured in Australia.</p> <p>(b) The original proposal for 2006 has been modified to harmonise with Euro 3. As the Euro 2 and Euro 3 standards for cetane index are the same, the level specified for 2002 continues unchanged (ie there is no new standard in 2006).</p>

Parameter	Initial proposal	Revised proposal	Comment
Density	1 Jan 2002: 820 to 850 kg/m ³ 1 Jan 2006: 820 to 845 kg/m ³	1 Jan 2002: 820 to 860 kg/m ³ 1 Jan 2006: 820 to 850 kg/m ³	(a) The upper limit for the 2002 standard has been increased to harmonise with Euro 2. (b) The original proposal to harmonise with the Euro 3 standard in 2005 has been modified. Adoption of the Euro 3 spec will limit the range of crudes suitable for use in Australian refineries in order to produce their unique product demand spread. Unlike Europe Australia does not have a large fuel oil market, however, it has an ongoing strong demand growth for automotive diesel oil. Relaxing the upper limit of the Euro 3 specification will allow refiners to produce a greater amount of diesel and less fuel oil from a wider range of crudes. The alternative would be to cat-crack the excess fuel oil. However, the product from this process is generally of a lower quality and would therefore make the other diesel specifications difficult to meet.
Distillation T95	1 Jan 2002: 360 ⁰ C (max) 1 Jan 2006: 350 ⁰ C (max)	1 Jan 2002: 370 ⁰ C (max) 1 Jan 2006: 360 ⁰ C (max)	(a) The original proposal for 2002 has been modified to harmonise with Euro 2. (b) The original proposal for 2005 has been modified to harmonise with Euro 3. The figure for Euro 3 provided in the discussion paper (350 ⁰ C max) was incorrect. The Euro 3 value for distillation T95 is 360 ⁰ C (max).
Polyaromatic hydrocarbons (PAHs)	1 Jan 2006: 11% m/m (max)	1 Jan 2006: 11% m/m (max)	The original proposal is unchanged.
Ash and suspended solids	1 Jan 2002: 100 ppm (max)	1 Jan 2002: 100 ppm (max)	The original proposal is unchanged.
Viscosity	1 Jan 2002: 2.0 to 5.0 cSt @ 40 ⁰ C	1 Jan 2002: 2.0 to 4.5 cSt @ 40 ⁰ C	The original proposal has been modified to harmonise with Euro 2.