



Australian Government

Department of the Environment and Heritage



*Fuel Quality Standards Act 2000*

## **CLEAN FUELS BULLETIN**

**December 2004**

### *Amendments to the Fuel Quality Standards Act 2000*

#### New Fuel Quality Standards

Four new Fuel Quality Standard parameters come into effect from 1 January 2005 as follows:

<b>Parameter</b>	<b>Standard</b>	<b>Grade</b>	<b>Date of Effect</b>
Olefins	18% max by vol	All grades	1 Jan 2005
Aromatic Content	45% v/v and 42% v/v pool average over 6mths	All grades	1 Jan 2005
Sulphur	150mg/kg upper limit	ULP, LRP	1 Jan 2005
Boiling Point	210° C	All grades	1 Jan 2005

### *Management of Leaded and Specialist Motor Racing Fuels in Australia*

As reported in the August issue of CFB, DEH recently engaged an independent consultant, SWB Consulting, to conduct a comprehensive review of current and future requirements for leaded and specialist motor racing fuels in Australia. Over the last two months the consulting team has sought submissions from and conducted face-to-face meetings with a wide range of stakeholders in the motor racing industry.

Since December 2002 the supply of leaded petrol for motor racing purposes has been permitted through two Ministerial Approvals under section 13 of the *Fuel Quality Standards Act 2000*. In March 2004, the Minister granted a further three Approvals covering the supply of 17 imported specialist motor racing fuels which do not comply with the Petrol Determination. All five approvals expire on 30 June 2005.

The Department is now considering the outcomes of the consultant's review with a view to advising the Minister in January 2005 on options for rationalizing the current legal and administrative arrangements covering the supply of motor racing fuels. The consultant's report includes the following key findings:

- While it is not possible to accurately determine the volumes of leaded racing fuels supplied in Australia each year, a reasonable estimate is around 3-5 million litres per annum, ie around 0.3% of total petrol consumption annually.
- There are no defining technical criteria that require motor/water sport (or specialist vehicles) to use leaded petrol. Alternatives are available.
- In all forms of motor sport examined ie four wheel (cars), two wheel (bikes) and water borne (boats), the same impediments apply to eliminating the use of motor racing fuels which do not comply with the Petrol Determination:
  - the possible removal of Australia from international schedules of events due to inability to supply the types of fuels available at overseas venues;
  - the possible elimination of certain racing categories in Australia due to loss of access to top-level global technology and consequential loss of competitiveness; and
  - the inability to maintain a truly competitive status for Australian competitors to 'step up' to international level.
- Continued access to these fuels is therefore considered appropriate for legitimate, restricted motor and water sport activities, and specialist vehicles.
- An acceptable management approach must allow for legitimate use, and provide a measure of control against cross-over to mainstream on-road vehicle use where these fuels potentially could undermine the objectives of the Government's fuel quality legislation.

The Department is aware that motor and water sport organizations require sufficient lead time to allow competition rules to be formulated for the 2005 calendar year and beyond. To this end, early in the New Year the Clean Fuels team will advise representatives of the motor racing industry of the Government's proposed approach to the future management of motor racing fuels.

The Government has previously indicated that access to leaded fuel may be further tightened after the current approvals expire on 30 June 2005. However, users may expect that access to both leaded and specialist racing fuels which are currently the subject of Ministerial approvals will be possible throughout 2005.

## ***Setting a Fuel Quality Standard for Fuel Ethanol***

The Department of the Environment and Heritage commissioned the International Fuel Quality Center (IFQC) to prepare a [technical paper](#) on the quality and characteristics of fuel ethanol around the world. The objective of this paper is to inform stakeholders and generate comment on setting a standard for fuel ethanol. Informed public debate is necessary to ascertain how quality standards are best managed.

This is **not** a position paper, however, comment received will be used to inform future policy decisions in the formulation of a fuel quality standard for ethanol. The views and opinions expressed in this publication do not necessarily reflect those of the Australian Government or the Minister for the Environment and Heritage.

The Department of the Environment and Heritage invites comment and seeks information from stakeholders on the issues raised in this paper.

Your comments are invited by COB **18 February 2005**.

Comments received will be treated as public information unless marked as confidential. It is intended that the feedback will be posted in a web forum on the Department website.

Please send comments, preferably electronically in Word format, to

email: [fuel.quality@deh.gov.au](mailto:fuel.quality@deh.gov.au)

or

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## ***Establishing a National Fuel Quality Standard for Diesohol***

As previously reported in CFB, the Department is currently evaluating technical issues associated with the use of diesohol (a blend of diesel and alcohol) as a transport fuel, and options for regulating its quality. In May 2004 DEH released the discussion paper, *Setting National Fuel Quality Standards, Paper 7: Discussion Paper on Diesohol*, for public comment. The discussion paper and stakeholder responses have been posted on the Department's website at <http://www.deh.gov.au/atmosphere/cleaner-fuels/publications/diesohol.html>.

This has proved a contentious issue, requiring further consultation and thorough consideration. The issue of greatest concern to stakeholders is the low flash point of diesohol compared with automotive diesel, and the safety concerns this raises. The addition of even small amounts of

alcohol to diesel (in the order of 5%) reduces the flash point of the fuel to that of alcohol, when tested by the standard method.

Diesohol has a typical flash point of 13<sup>0</sup>C (based on a 15% ethanol/diesel blend), compared with 61.5<sup>0</sup>C for automotive diesel in Australia. The reduction in flash point means that diesohol must be treated as a “Class 3 Flammable Liquid” and “Dangerous Goods”, which has implications for transport, storage and handling of the fuel. The standard service station infrastructure for diesel fuel is not appropriate for diesohol. In light of this, most proponents of diesohol advocate its use in niche market situations, such as large, centrally fuelled diesel fleets where “informed” users are prepared to invest in fit-for-purpose storage and handling infrastructure.

The Australian Truck Industry Council (TIC), which represents Australia’s major truck importers, has recently stated publicly that diesohol should not be considered for use in road transport. The TIC cites the stance taken in Europe by the European Committee for Standardisation, which is strongly opposed to the development of a standard for diesel/ethanol blends primarily on safety grounds, but also on the basis of reduced ignition quality, engine power and fuel economy. The TIC also has concerns with the storage of diesohol in private diesel fuel storages, particularly in rural areas of Australia.

In light of these concerns, and noting that the current supply of diesohol is negligible, the Department proposes to consult further with government and industry stakeholders early in 2005. The Department is concerned, however, that as diesohol is defined as a fuel in the *Fuel Quality Standards Regulations*, there is a risk that the absence of a standard may provide a loophole for opportunistic blending of diesel and alcohol.

The Department’s contact officer for this project is [marguerite.carrington@deh.gov.au](mailto:marguerite.carrington@deh.gov.au).

### ***Amendments to Biodiesel Standard***

Assessment was undertaken on the implementation of the Biodiesel Standard and minor amendments have been made to ensure the effective operation of the legislation.

The amendments do not substantially alter existing arrangements. The amendments relate to delaying the introduction of cetane number and include additional test methods, introduce an additional limit and test method for copper strip corrosion for ultra low sulfur biodiesels and correct the alcohol content limit.

A copy of a table with the amended standard can be found at: <http://www.deh.gov.au/atmosphere/biodiesel/index.html>

The amendments are yet to be incorporated on ScalePlus.

## ***Fuel Quality Standards Act 2000 - Approvals Granted under the Act***

Since the previous regular Clean Fuels Bulletin and after consultation with the Fuel Standards Consultative Committee, the Minister has granted two approvals under Section 13 of the Fuel Quality Standards Act 2000. These are listed in the table below.

<b>Name of Approval Holder</b>	<b>Period of Operation</b>	<b>Approved Variation of Fuel Standard</b>
The Shell Company of Australia	30 September 2004 – 28 October 2004	Variation of the Fuel Standard (Petrol) Determination to permit supply of unleaded petrol with an olefin content of up to 25%
The Shell Company of Australia	30 August 2004 – 30 December 2005	Variation of the Fuel Standard (Diesel) Determination 2001 to permit the supply of Shell Aquadiesel.

### ***Monitoring, Compliance and Enforcement***

For the period July to December 2004, Inspectors representing the Department of the Environment and Heritage have visited 265 service stations and gathered 530 automotive fuel samples from across Australia. All samples taken are subjected to laboratory testing to determine compliance with the requirements that are set out under the *Fuel Quality Standards Act 2000*.

### ***Cetane number and the IQT***

Until recently, there has not been an operational cetane number analysis apparatus in Australia. Intertek Caleb Brett Australia will soon be installing the latest imported technology Ignition Quality Tester (IQT) from Advanced Engine Technology of Canada. The IQT, with air-assisted fuel injection, is a combustion-based instrument, which enables the determination of the ignition quality of diesel fuels in a rapid, quiet and cost effective manner. The IQT can also be used for cetane number determinations for biodiesel blends, diesel with added cetane improvers, diesohol and hydrated diesels.

## ***Second National In-Service Emissions (NISE 2) Study - Update***

The Preliminary Phase of the NISE 2 study is now approaching the halfway point. A candidate Australian composite urban emissions drive cycle (CUEDC) for light duty petrol vehicles has been developed from over 430 hours of driving data collected from the Brisbane, Sydney, Melbourne, Adelaide and Perth metropolitan areas.

The roads driven within each city were based on the routes used by Austroads in their Network Performance Indicators for Travel Time with measurements taken (by GPS) on five week days in three time periods (AM peak, PM peak and off peak). ADR category MA, MB, MC and NA vehicles were used. The data was aggregated and appropriate VKT weighting factors for each city were applied to derive the national VKT weighted CUEDC.

When finalised, the CUEDC will be used in the Main Phase of NISE 2 to test a representative sample of light duty petrol vehicles to establish the current emissions profile for the Australian petrol vehicle fleet.

Remaining tasks in the Preliminary Phase include development of a short test based on the CUEDC that can provide a reliable measure of emissions performance, preparation of minimum test equipment and instrumentation specifications for performance of the CUEDC and short test, and a vehicle testing program to correlate emissions measured using the CUEDC, the short test, ADR37 and the IM240 drive cycles.

The Department of the Environment and Heritage commissioned Orbital Engine Company and the University of South Australia's Transport System Centre for the Preliminary Phase of NISE 2 in July 2004. It is expected the Preliminary Phase will conclude in mid 2005.

## ***Diesel Emissions Reduction in New South Wales***

After four years of operation, the Roads and Traffic Authority of NSW's 'Diesel Emissions Reduction Program' continues to deliver impressive results. Highlights from the program so far include:

- Emission testing of around 2,500 vehicles from over 60 fleets in the largest diesel emissions testing program of its type undertaken anywhere in the world.
- Development of an audited maintenance program for heavy vehicles under the 'Clean Fleet' trademark. Audited maintenance programs minimize diesel emissions by ensuring maintenance is effective and engines operate at close to their design condition. Information on Clean Fleet is available at <http://www.rta.nsw.gov.au/heavyvehicles/cleanfleet/>
- Continued strong attendances at the RTA's "Emissions Awareness" training course. Developed in conjunction with Wetherill Park TAFE, the course provides truck owners, operators, drivers, diesel mechanics and fleet managers with information on the factors affecting diesel emissions.
- Establishment of a laboratory standard emissions testing facility at Londonderry. The facility will be used to evaluate a range of diesel and alternative diesel fuels and

aftertreatment devices. In addition, a briefcase size instrument that can measure particulates and NOx and potentially further reduce the cost and improve the ease of testing will be evaluated.

- Trialing, in conjunction with Camden and Newcastle Councils, various biodiesel blends in Council vehicles. The trial demonstrated that biodiesel can deliver significant reductions in particulate and smoke emissions without significant increases in other pollutants. The trial also highlighted issues of biodiesel availability and quality which need to be addressed before this fuel can be widely used.
- The RTA is also seeking further emission reductions from its own fleet by applying audited maintenance principles to off-road plant and equipment and by investigating the benefits of retrofitting exhaust after-treatment devices to its older diesel engines.
- The Commonwealth has provided over \$8 million to support NSW's Diesel Emissions Reduction Program. The current program is due to conclude at the end of 2006.

### ***Non-Road Engine Emissions***

Vehicle engine emissions are regulated by the Australian Government via Australian Design Rules (ADRs) established under the *Motor Vehicles Standards Act 1989*. These ADRs are applicable to vehicles intended for use on public roads and currently cover cars and trucks, although not motorcycles.

#### **Non-road engines**

Additional to motorcycles, there are no controls on emissions from engines used in non-road applications. This group of both diesel and petrol engines covers a broad range of categories from locomotives to garden equipment. Table 1 summarises the categories of unregulated engines.

<b>Petrol Engines</b>	<b>Diesel Engines</b>
Motorcycles	Non-road diesels (eg. Construction equipment; agricultural; forklifts; generators;)
Recreational vehicles (trail bikes; scooters; mopeds; all-terrain vehicles)	Marine diesel engines
Garden equipment (non-handheld: garden tractors; lawnmowers; handheld: leaf blowers; chainsaws)	Locomotives (generally larger than any land-based non-road diesel in displacement volume and total power, with a life span of 40yrs or more)
Large spark ignition engines (eg. Usually car/truck engines in industrial equipment: forklifts; compressors; welders; aerial lifts;)	
Marine spark-ignition engines	
Aircraft	

Vehicles have been identified as a major contributor to air pollution in urban areas. The Department of the Environment and Heritage is interested in the extent of emissions from non-road engines in urban areas and will commence work in this area in 2005.

### ***Future Low Sulfur Fuel Standards - Post 2006***

In 2006 an incentive for refiners and importers to supply or produce premium unleaded petrol containing 50ppm will be introduced. The 50ppm sulfur standard will be mandated in 2008. In 2007 a further incentive will be provided for refiners and importers to supply or produce diesel containing 10ppm sulfur. The 10ppm diesel sulfur standard will be mandated in 2009.

Complementary emission standards (ADRs) will also be introduced. The timeline for Euro 4 emission standard for light petrol, liquefied petroleum gas and natural gas vehicles is anticipated to be 1 July 2008 for new models and 1 July 2010 for all models. The revised timeline for Euro 4 for heavy duty vehicle is 1 January 2007 for new models and 1 January 2008 for all models. The anticipated timeline for Euro 5 or equivalent emission standards for heavy duty vehicles will be introduced from 1 January 2010 for new models and 1 January 2011 for all models.

These standards build on the significant environmental gains that have been achieved under the existing fuel and emissions standards and ensure that our momentum in the move to cleaner conventional fuels and advanced vehicle technologies will be maintained into the future.

The Land Transport Environment Committee (LTEC) will undertake a study into the costs and benefits expected to arise from the introduction of 10ppm sulfur premium petrol (10ppm) in Australia, with an indicative introduction date of 1 January 2010. To complement this study, the Australian Greenhouse Office will advertise (in January 2005) for a consultancy to examine the likely demand and availability of this fuel in 2010.

### ***Merry Christmas***

The staff of the Clean Fuels and Vehicles Section wish all a merry Christmas and a happy and safe new year.



**Peace and Happy Holidays  
to all our community members**



## ***CONTACT DETAILS***

For more information about any of the information in this Bulletin, please contact:

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