

14th May 2003

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Dear Daniel

National Standard for Biodiesel

The Truck Industry Council (TIC) is pleased to forward this submission in response to the paper covering a national standard for biodiesel. TIC represents truck and diesel engine manufacturers, and as such has significant experience in fuels and lubricants.

For simplicity, this response follows the format of the paper, addressing each chapter, and issue, in turn.

Compatibility of Fuel Standards

For the past 10 years, diesel exhaust emission standards have been based on ECE standards, allowing North American and Japanese standards as alternates when appropriate. Today's modern diesel engine, with very low emissions requires very stringent standards for fuel.

We note that the European Committee for Standardisation (CEN) is currently finalising a biodiesel fuel quality standard for Fatty Acid Methyl Ester (FAME) for use in diesel engines. The draft standard being pr EN 14214 – Automotive fuels – Fatty Acid Methyl Ester (FAME) for diesel engines – Requirements and test methods for marketed and delivered biodiesel to be used in diesel engines regardless of the blend ratio with diesel fuel in accordance with the requirements of EN590 (the CEN diesel standard).

Accordingly, TIC strongly recommends that Australia Harmonise with ECE on biodiesel standards by adopting, in due course standard pr EN 14214. This supports the recommendation by the Engine Manufacturers Association (see attached paper by EMA "Technical Statement on the use of Biodiesel in compression ignition engines).

Blend Levels

The blend ratio between biodiesel and diesel is the most important issue for truck and engine manufacturers. As detailed in the paper, there are a number of important issues

- **National blend ratio of biodiesel to diesel**

TIC strongly recommends that there be a national blend ratio of 5% biodiesel to 95% diesel (B5). There are a number of reasons for making this recommendation, including the following, which are all discussed in more detail in this submission:

- Performance (power torque)
- Fuel economy
- Impact on engine
- Impact on manufacturers warranty

- **Availability of biodiesel**

From information received from Government and the biodiesel industry, we understand that production of biodiesel over the next five years will probably be less than 450 megalitres pa. This will automatically limit the blend level.

- **Performance – Power and Torque**

As biodiesel, on a volumetric base contains approximately 10% less energy than diesel, as the ratio of biodiesel increases, power and torque decrease. Engine performance is critical in road transport, and therefore by limiting the ratio of biodiesel to B5, engine performance is not degraded. (see attached paper by EMA "Technical Statement on the use of Biodiesel in compression ignition engines).

- **Fuel Economy**

The energy or calorific value of fuel is a major component in fuel economy. Again, a maximum ratio of B5 will not significantly impact on fuel economy.

- **Engine Oil**

High levels of biodiesel can have an adverse impact on some engine oil. To ensure that engine oil performance is not degraded, the B5 ratio is recommended.

- **Emission Standards**

Vehicle manufacturers certify their vehicles to emission standards based on test fuels. As previously noted, the use of biodiesel will increase the levels of NOx emitted. Blend levels above B5 may well result in the vehicle no longer complying with the relevant Australian Design Rule to which it has been certified. As such, we would be opposed to blends above B5.

We note that figure 4.1 - emissions on Page 15, suggests significant reductions of Pm, Co and Hc, however NOx is increased. This data is based on pre 1997 vehicles, probably equivalent to EUR01 standard. We would suggest that emission reductions in EUR03 and later engines would be far less.

We also note that a blend ratio of B2 overcomes any lubricity problems associated with low sulphur fuel. This supports our recommendation of a B5 blend.

- **Biodiesel Parameters**

The standards and test procedures for the components of biodiesel referred to in Chapter 6 are all covered by pr EN 14214 or the US ASTM D 6751. By adopting EN 590, and pr EN 14214m when available, the standards and test procedures in Chapter 6 are automatically adopted.

Alcohol

Do we need to comment on Methanol and Ethanol requirements.

Impacts on blending biodiesel with diesel

Most of these issues have already been covered under our section on Blend Levels which strongly recommends B5 as a maximum. These issues include:

Reduced engine performance - power torque and fuel economy, and Degradation of engine oil

With respect to engine warranties, there needs to be a clear understanding on the basis of such warranties. Truck and engine manufacturers carrying out significant testing of engine performance, including power, torque, fuel economy and durability. These tests are based on known parameters, including fuel standards. To date these tests have been conducted on diesel. It should be noted that ongoing analysis of engine performance and durability is carried out during the life of the engine. Significant data is available at the time of major engine overhauls. It should also be noted that engine wear is based on the amount of diesel fuel consumed not distance travelled. This data is used to develop the manufacturers warranty.

In addition certification to Australian Design Rules is based on emission standards achieved with specified test fuel. Biodiesel blends above B5 will result in the engine emitting excessive levels of NOx and therefore no longer complying with national standards.

Data on the use of blends above B5 is not available in sufficient detail to allow a manufacturer to provide realistic warranties. Accordingly, truck and engine manufacturers will limit their warranties to known data, namely fuel to a maximum of B5.

Problems encountered by operators which may relate to reduced engine performance, high fuel consumption, high wear or frequent injection clogging up, using a blend above B5 would be subject to the discretion of the engine/vehicle manufacturer.

- **Effect of biodiesel or diesel engine oil**

This issue has already been covered in the section on 'Blend Levels', and manufacturers warranties. A national level up to a maximum of B5 is not expected to have any adverse impact on engine oil. Consideration of having higher blend levels mean biodiesel production facilities to reduce transport/distribution costs is not acceptable to truck and engine manufacturers or the road transport freight industry.

- **Australian experience**

As noted in clause 10.3, page 75, the truck and engine manufacturers were consulted on biodiesel blends, and recommended a maximum of B5. That recommendation remains.

With respect to compliance, truck and engine manufacturers are of the view that a biodiesel blend up to a maximum of B5 will not affect ADR compliance.

Insofar as labelling is concerned, we do not see a need for any labelling/information on biodiesel blends up to B5. However, if blends above B5 were made available, we would strongly recommend that the consumer be made aware that the blend level is above that recommended by the truck and engine manufacturer, and may void the manufacturers warranty. The label should also state that engine performance may be reduced, fuel consumption increased and that the vehicle may no longer comply with national exhaust emission standards.

Summary

The Truck Industry Council and the Australian Institute of Petroleum recommend that with respect to biodiesel:

- Australia adopt the European pr EN 14212 standard to ensure compatibility with EN 590. For standards and test procedures pr EN 14214 and US ASTM D 6751 standards

A biodiesel blend up to a maximum of B5 be legislated. Australia should follow the European approach in Appendix B, Page 87 of 2% in 2005, increasing to 5% in 2010. This blend level would be sufficient to consume all biodiesel produced. A blend level up to 5% maximum (B5) is acceptable for all engine parameters.

- Biodiesel blends above B5 be labelled accordingly with appropriate warnings.

Yours sincerely

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Terry Pennington