

**Comments
on
Setting National Fuel Quality Standards
Discussion Paper on Diesohol
Paper 7**

**Electronically Submitted to
Clean Fuels and Vehicles Section
Department of the Environment and Heritage
CANBERRA ACT**

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Comments Submitted by:

**Robert E. Reynolds
Coordinator & Technical Consultant
E diesel Consortium
c/o Downstream Alternatives Inc.
2259 Harwood Street
South Bend, IN 46614
phone: (574) 250-2811
fax: (574) 231-8975
email: rreynolds-dai@earthlink.net**

Introduction & Background

These comments on “ -Setting National Fuel Quality Standards-Discussion Paper on Diesohol” are being submitted on behalf of the E diesel Consortium. The E diesel Consortium is comprised of E diesel stakeholders and, while focused primarily on E diesel[†] use in the United States of America (USA), some of our members do have international operations including E diesel related interests. In addition, the E diesel Consortium’s goals include working with other countries interested in E diesel, since to do so may aid in addressing technical and market development issues for E diesel use in the USA.

The E diesel Consortium operates as a standing committee of the Renewable Fuels Foundation. The consortium’s primary focus is technical in nature. Our stakeholder members include E diesel marketers, E diesel additive companies, ethanol producers, ethanol and agricultural trade associations and some of the national laboratories. Additional information may be obtained at the E diesel Consortium’s website at e-diesel.org.

While the Department seeks comment on a broad range of topics, our comments will be limited to the topics and subject areas where we believe we can offer constructive input, or upon which we have a developed position.

In constructing these comments, we have followed a format similar to filing comments in the USA and hope that the structure is acceptable to the Department.

In general, the following pages list the area upon which comment is sought, followed by our comments on that topic.

(Page 8) Issues for Comment

Part A - Options for regulating Diesohol.

2) Stakeholders are asked to provide comments on their preferred option for the regulation of Diesohol.

[†] E diesel is a blend of standard diesel fuel oil containing up to 15v% ethanol and up to 5v% proprietary additives to maintain blend stability and other performance standards

We believe the preferred option is a national standard under the FQS.

We realize this imposes a regulatory burden and expense on marketers of Diesohol, and a corresponding cost for administration of a standard that the government would incur for monitoring compliance.

However, the success of a new fuel depends very much on the quality of the fuel. If no standard is set, the quality of the fuel is left to the blender and marketer. All it would take is for one or two companies to sell a low quality product and the negative image developed by the consumer would impede market growth for years to come.

A voluntary industry standard presents the same problem. While the majority of blenders and marketers are reputable and would sell a high quality product, there are no assurances that prevent companies from selling a low quality product. This would result in the same negative impact on the consumer and a resulting negative perception of the product.

State and territorial standards, while better than no standard at all, may also present problems. If the standards are not harmonized between areas, consumers could encounter Diesohol of varying quality from one area to another. As an example, if one area permits a higher alcohol content, consumers may experience lower fuel economy than they experience in another area. Similarly, one area may choose to adopt a lubricity standard while another may not, resulting in one area potentially having fuels that could, over the long term, lead to increased fuel system wear.

For the above reasons, the Consortium supports adoption of fuel standards on Diesohol at the national level. Moreover, to the extent possible, harmonization of such a standard with other countries should be encouraged. This ensures that engine and fuel system manufacturers can focus on a more narrow set of engineering parameters in addressing any differences between Diesohol and standard diesel fuels.

Consistent fuel standards applied across the broadest area possible provide the greatest insurance that consumers will be obtaining high quality fuels resulting in a better driving experience, greater acceptance of this fuel alternative, and consequently, greater market acceptance.

3) Stakeholders are asked to provide comment on the preliminary impact analysis of implementing a fuel quality standard for Diesohol (presented in section 5.4)

See comments above.

Part B - Technical issues related to a fuel quality standard for Diesohol.

Critical Parameters

5. Stakeholders are asked to comment on:

- **the appropriateness of limiting alcohol to 15%;**

The E diesel Consortium has chosen a maximum level of 15% for the ethanol content for E diesel. The reasons for this limit are that a) test data on higher blend levels is limited, and b) at higher blend levels, fuel economy penalties are much greater. To allow higher blend levels may result in E diesel (and Diesohol) with a wider variation in energy content which would result in consumers experiencing too broad a range of fuel efficiency changes.

- **the appropriateness of using oxygen content as the parameter for regulating alcohol content;**

In the USA we have not advocated the use of an oxygen content limit because we anticipate using only ethanol. However, in the case of Australia, you are considering a Diesohol specification which may allow the use of methanol. Consequently the department may indeed wish to consider using a maximum oxygen limit. Methanol contains more oxygen and less btu/gal than ethanol. By limiting oxygen content to say ~ 5.5%, this would limit ethanol content to 15% while limiting methanol to 11%. This would also serve to keep the energy content of Diesohol with either alcohol closer together.

- **an appropriate parameter for individually ensuring the quality of alcohol used to blend Diesohol**

In the case of Diesohol containing ethanol, we believe requiring the ethanol used in the blend to meet ASTM D4806 “Standard Specification for Denatured Fuel Ethanol for Blending with Gasoline for Use as Automotive Spark-Ignition Engine Fuel” will ensure the quality of the alcohol used.

6. Stakeholders are asked to comment on

- **An appropriate measure of cetane**

Additives used in Diesohol will likely render cetane index inaccurate. As such, we believe the only appropriate measure of cetane quality available at the present time is ASTM D613 “Test Method for Cetane Number of Diesel Fuel Oil”.

- **An appropriate minimum limit for cetane number;**

The E diesel Consortium has chosen 40 as the minimum cetane number for E diesel (Diesohol) because that is the minimum cetane number specified for diesel in ASTM D975 “Standard Specification for Diesel Fuel Oils”. We feel strongly that for diesel alcohol blends to be accepted, they should, where possible, adhere as closely as practical to the performance based specifications applied to standard diesel fuel.

8. Stakeholders are asked to comment on:

- **the appropriateness of setting a standard for lubricity at a maximum wear of 0.460 mm at 60°C:**

As noted above, the E diesel Consortium believes, where possible, diesel alcohol blends should adhere to the same performance based specifications as standard diesel fuels. Since additives readily exist to improve lubricity, Diesohol should meet the same regulatory standards as diesel. Where no standard is applied to diesel, lubricity standards based on fuel system manufacturers and engine manufacturers recommendations should be developed.

11. Stakeholders are asked to comment on:

- **the appropriateness of setting a maximum limit for sulfur at 500 ppm to be reduced to 50 ppm on January 1, 2006**

Since ethanol contains little or no sulfur, the E diesel Consortium has taken the position that diesel alcohol blends should adhere to the same sulfur standards that are applied to diesel. In the USA, these standards differ based on if the use is for on-road or off-road applications.

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20. Stakeholders are asked to comment on the appropriateness of not regulating flash point:

Diesel typically has a minimum flash point of 52°-55°C (38°C in the case of No. 1 diesel). The addition of ethanol, at very low levels, will lower the flash point of the fuel to ~ 10°C. This is due to the presence of the ethanol and there is no known fix to this phenomenon. Methanol based blends would behave in a similar manner. To place a flash point minimum on Diesohol would essentially eliminate it from the market place.

It should, however, be noted that the lower flash point results in an ignitable vapor/air mixture being present in vehicle and distribution storage tanks under certain conditions. As such, Diesohol will need to be handled in the same manner as gasoline. This is one reason why, in the USA, the focus has been on centrally fueled vehicles and equipment. By focusing on centrally fueled equipment, there is a greater level of contact with refueling and maintenance personnel. Also, this approach allows for installation of flame/flash arrestors in vehicles and equipment fuel tanks or the use of dry break fueling connectors. Because of the flammability issue, it may be advisable to require labeling of Diesohol blends to advise users of its flammability.

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7. Stakeholders are asked to comment on:

- **the appropriateness of setting a maximum density limit of 860 kg/m³, to be reduced to 850 kg/m³ on 1 January, 2006;**

- **the appropriateness of leaving minimum density open;**

Since alcohol will lower the density of the diesel to which it is added, Diesohol should be required to meet the same maximum density limits that are applied to standard diesel.

If the diesel used in the blend is required to meet regulatory standards and a maximum alcohol limit is set, there should be no need to enforce a minimum density. However if the diesel used in the blend is not required to meet standards (e.g., in the USA, ASTM D975) then it may be necessary to set minimum density to preclude the use of substandard diesel and/or the addition of low density fuel components.

Fuel Specification Approach in USA

The position of the E diesel Consortium in the USA has been that as a starting point.

- A) The diesel used as the base fuel for any E diesel blends should meet the requirements for diesel fuel oils set forth in ASTM D975 “Standard Specification for Diesel Fuel Oils”.
- B) The ethanol added to the blend should meet the standards for fuel grade ethanol as set forth in ASTM D 4806 “Standard Specification for Denatured Fuel Ethanol for Blending with Gasoline for Use as Automotive Spark-Ignition Engine Fuel” and the maximum volume percentage of ethanol allowed in the blend should not exceed 15%.
- C) E diesel blends should be required to meet the same performance based standards as diesel, including viscosity (kinetic viscosity, 40 (cSt), ash % max, sulfur % max, copper corrosion, cetane number, lubricity, and stability.
- D) Certain diesel properties that are altered by the addition of ethanol should be recognized and permitted. In particular the flash point of E diesel is lower. In addition, distillation % volume recovered at T₉₀ maximum will be lower, Ransbottom Carbon 10% residue will be lower, and API Gravity (density) will be slightly lower.
- E) Cetane index is not a useful metric for cetane quality of E diesel. The usefulness of other fuel quality parameters such as cloud point and water sediment max may need to be modified for E diesel blends.

- F) Any specification needs to recognize that certain additives may be required to improve blend stability and maintain performance standards.

Closure

The E diesel Consortium appreciates the opportunity to provide these comments and hopes that the department finds our observations useful.

If there are any questions regarding these comments, they should be referred to:

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574-231-8975 fax
rreynolds-dai@earthlink.net