

23 May 2003

Mr Daniel Sheedy
Biodiesel Project Manager
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Dear Mr Sheedy

NATIONAL STANDARD FOR BIODIESEL - DISCUSSION PAPER

Please find the following comments in relation to the National Standard for Biodiesel Discussion Paper.

The following comments relate to each of the boxed comment points and have been numbered for convenient reference.

Should you require any clarifications, please contact me on 9245 5619. I congratulate the authors of the discussion paper on a thorough and comprehensive document.

Yours sincerely

COLIN MENZIES
GENERAL MANAGER
BUS OPERATIONS

COMMENTS ON BIODIESEL DISCUSSION PAPER

1. National fuel quality standard is important to ensure consistent fuel consumption and driveability of buses in service, ensure that the materials of the fuel and combustion systems are not adversely affected and permit the purchaser to know exactly what is being supplied.
2. The harmonisation of biodiesel standards is important, particularly with European standards because most of the engine manufacturers are European based companies. Special requirements or variations to production engines can be expensive in terms of purchase price and risk of in-service problems not detected by prototype engine testing.
3. From the paper it appears that the feedstock to UK (and the alcohol used) has a large affect on the fuel quality. Therefore the process does probably need to be considered in the standard.
4. Do the emission tests comparing biodiesel to diesel take into account the loss in fuel economy and power which also affects how the vehicle is driven?
5. Blended biodiesel should probably not exceed 4% or 5% based on engine warranties. (The reference chapters in the question do not agree with the relevant section numbers in the discussion paper).

The optimal degree of blending is a balance of cost and emission performance. The costs of the biodiesel fuel relative to diesel will determine the affordability of each blend.

6.
 - (a) The total sulphur content for biodiesel appears to be extremely low in comparison to diesel. The actual level specified should be consistent with the European and USA standards so that engines designed to those standards do not face any potential problems when used in Australia.
 - (b) No preference is nominated for the sulphur test method used.
7.
 - (a) No comment on appropriate carbon residues other than to note consistency with European and USA standards is important.
 - (b) No preference is nominated for the carbon residue method used.
8.
 - (a) State Transit buses use catalytic converters to improve emissions therefore phosphorous content is important to be within limits to prevent deterioration of converters. The levels of phosphorus therefore should be consistent with European and USA standards.
 - (b) No preference is nominated for the phosphorus test method used.
9.
 - (a) The appropriate level is at least that specified in the European

Standard.

- (b) No test method is nominated for ester content.
10. (a) The European standard for viscosity should be used.
 - (b) No preference is nominated for the method used to determine viscosity.
 11. (a) The octane number should mirror that used in the European specifications because European engines are used in all major city bus fleets in Australia.
 - (b) No preference is nominated for the method of determining octane numbers for biodiesel.
 12. (a) The European and US standard specifications should be used.
 - (b) No comment is made on the test method to determining sulphated ash content.
 - (c) No comment is made on the level of or test method for oxidiesel ash.
 13. (a) Due to the potential for a variety of methods to be used to manufacture biodiesel, residual contamination standards are necessary. It is suggested the European Standard be adopted for consistency with European engine standards.
 14. (a) The European standard is recommended for acid value/number of biodiesel.
 - (b) No test method is recommended for determining acid value/number.
 15. (a) Consistency with the European standard is recommended.
 - (b) No test method is recommended.
 16. As per 15.
 17. As per 15.
 18. As per 15.
 19. As above. The high volume usage of fuel at STA would result in potentially detrimental accumulations of free glycerol.
 20. As per 15.
 21. As per 15.
 22. Given biodiesel is much more thermally stable than diesel, a thermal stability

test is not recommended.

23. As per 15.
24. As above however there should also be a limit for ethanol.
25. For national applications of biodiesel, low temperatures can be experienced in some areas of Australia. While the cloudiness of biodiesel is not an important parameter directly, its relationship to cold weather operability is related. Therefore if there is a method of ensuring operability at low temperatures then the cloudiness is not important as a direct parameter.
26. The supplier/customer method as used in the US appears to be a little informal. The European method of a set limit depending on the climatic conditions seems sensible.
27. From the discussion it appears the US ASTM D 6751 provides protection from fuel being "adulterated" with high boiling contaminants and therefore this standard has merit.
28. A calorific limit would make sense as this affects fuel consumption and driveability.
29. A density test to ensure fuel quality would be sensible.
30. The flash point is an important parameter in fuel storage and handling. To reduce costs associated with biodiesel usage it would be advantageous that the flashpoint limits of biodiesel are set so that no changes to storage and fuel handling equipment is necessary.
31. While neither the European nor US standards specify water content, from the discussions it appears that some control over water content is sensible.
32. The European standard for water content is more relevant as all models used at State Transit are European.
33. The European standard for copper strip corrosion is recommended as all models used at State Transit are European.
34. The standards should specify the alcohol used as the effect on engine life is an important factor in fuel selection and has warranty implications. There are also environmental reasons why ethanol might be a preferred alcohol to ethanol.
35. No comment other than to concur that more work needs to be done to determine the effect of biodiesel on engine oil.

State Transit uses synthetic oil in its engines - some of which are more than 20 years old. As part of any trial to determine the suitability of biodiesel for fleet use, engine oil polymerisation tests would obviously need to be

conducted.

36. State Transit has a fleet of 1902 buses of which approximately 400 are CNG and the remainder diesel. The oldest buses are 24 years of age. Mercedes is the dominant supplier, however there are also 125 Volvo diesel buses, 200 Scania diesel buses, 100 Scania CNG buses and 50 MAN diesel buses. From the table provided (10.2), State Transit would probably restrict its biodiesel to four percent. It would be considered unwise to use blends of any higher than four percent as it could provide OEM's an avenue to mitigate or even reject warranty claims.
37. The infrastructure impacts are unknown, however State Transit does have substantial diesel storage systems and if changes are required to accommodate biodiesel - costs would be significant.
38. Labelling of biodiesel is considered essential given the recent debate over ethanol.

