

# BIODIESEL BEWARE

- By Dave Scott

A spate of recent articles on biodiesel promotes the ease with which biodiesel can be manufactured. The problem is that the emphasis is on the 'ease' and not the standard to be adhered to (SANS 1935:2004) plus the additional cost of quality control. SANS 1935 does not get a mention in these articles while adherence to SANS 1935 quality standards is the most important aspect of using biodiesel. There are a number of start-up biodiesel plants in South Africa - it sounds like the environmentally friendly product to support. After all, where does all that used cooking oil go if it is not sold as a cheap mixture of carcinogens for the poor to reuse and consume? And according to estimates there are around 10 million litres of used cooking oil in circulation every year. The problem for biodiesel is adherence to standards and the consequences for modern diesel engines.

Another biodiesel problem is that variations in feedstock material for processing can have a significant effect on the processing chemistry - it's not just a case of pouring any vegetable oil into a tube with a standard outcome while it only becomes viable to test and certify large batches.

The authoritative SAPIA book, *Petrol & Diesel in South Africa*, states: 'The cost of biodiesel analysis is very high and technically complex. Analytical facilities in South Africa are limited. It is not feasible for small-scale producers to carry out the analysis due to the high costs involved and a means of overcoming this must be addressed.' During

the development of SANS 1935:2004, it became apparent that South Africa does not have the technical and analytical capability to test biofuels. As a countermeasure to this problem the SABS invested over R2.9 million in test equipment.

*Biodiesel (fatty acid methyl esters or fatty acid ethyl ester) is rapidly gaining international acceptance as a blend component to blend levels of up to 5% for on-road use. The requirements of South African biodiesel standards are covered in SANS 1935:2004. Biodiesel quality is assessed against a SANS 1935:2004 (which entails the use of European Standard Methods and methods from the International Standard Organisation ISO) specification consisting of 26 tests. The 26 tests are designed to control the chemical and physical properties of biodiesel and to ensure that it is produced to a uniform standard, performs well in an engine, does not damage it, and does not produce harmful emissions.*

Petrol and Diesel in SA goes on to say that: 'Care needs to be taken to ensure acceptable quality of the manufactured biodiesel (SANS 1935), so that when blended with conventional diesel at up to 5% by volume, the resultant product complies with the national automotive diesel specification (SANS 342) and is therefore fit for use as an on-road

transport fuel.' How many of these small biodiesel processing plants are not making use of the SABS test equipment or alternatively could afford the R2.9 million and trained staff it needs to operate the test machinery?

Every batch of biodiesel needs to be certified to the relevant SANS specification at the point of manufacture/ blending and whether additives are included or excluded needs to be noted. But this practice should not be confined to biodiesel alone. It applies equally to the supply of standard SANS 342 hydrocarbon diesel. Petrol & Diesel in SA points out: 'In certain quarters, there is a growing resistance to the use of biodiesel because it tends to have blending and performance characteristics that are not consistent, especially with new ultra-high pressure common rail injection systems and associated emission control devices.'

The point of all this is that if you are operating a modern common-rail diesel powered truck you dare not tank up with diesel of unknown quality. The tendency to offer power-train warranties that include unlimited distances over two years and more does not extend to diesel fuel that cannot match consistent laid down standards. Insist on a batching certificate or fill up at reputable sites. And even then audit your suppliers on a regular basis.

*References:*  
SAPIA - *Petrol & Diesel in South Africa*.  
REPORT ON SABS PETROLEUM LABORATORY CAPABILITY TO TEST BIODIESEL  
Compiled by Aleesha Sewpersad MARCH 2008.

