

Biodiesel Uniformity is on the Way

Diesel engine makers around the world have had reservations about the widespread use of biodiesel fuels. It's not that diesel engine designers are in bed with the oil companies: they're just concerned about fuel quality.

The quality of biodiesel has been a major concern for engine makers, all of whom have been requesting an international standard. In July 2008, the Worldwide Fuel Charter published its draft document, 'Biodiesel Guidelines', which is being accepted by global engine makers. Worldwide Fuel Charter was established in 1998 and represents nearly every diesel engine maker around the world.

The guideline document lists the chemical content requirements for 100 percent biodiesel blend stock, intended for mixing with petroleum-based diesel fuel to a maximum of five percent.

Note that this fuel specification is not intended for higher concentrations of biodiesel than the current B5 blend (95 percent diesel, five percent biodiesel) that is globally-accepted by diesel engine makers.

Although future publications from the WWFC may cover characteristics for biodiesel blends in higher ratios these greater concentrations have not yet been given the green light.

The principal concern that engine makers have with high biodiesel concentrations is guaranteeing the quality of the fuel and, more significantly, its stability in transit and in storage.

The results of long-term biodiesel storage tests have been appended to the guideline document. In particular, the WWFC notes that anti-oxidants should be added to the fuel during production, to limit degradation and biodiesel should not be stored for long periods, or in adversely hot or cold conditions.

Importantly, any biodiesel blend fuel needs monitoring until it is used.

Europe is examining raising the overall biodiesel content to 10 percent, but this will happen only after further liaison with diesel engine makers.

Some engine makers are working towards higher concentrations already. Cummins has a commitment to warrant its engines to operate on standards-compliant B20 biodiesel in the near future. At a meeting in Sydney in August 2008, Cummins' engine business vice president, Jim Kelly, told a group of journalists that B20 operation is quite feasible, but fuel certification is difficult, because of different biofuels standards around the world.

Peugeot, the world's largest producer of diesel engines, is ahead of the game, in its car diesels, anyway. The Peugeot HDi range of vehicles can successfully operate on biodiesel which meets or is equivalent to the EN14214 Standard to a maximum blend of B30.

What is Biodiesel?

Biodiesel is typically a fatty acid methyl ester (FAME), made by the reaction of vegetable oil or animal fat with ethanol or methanol, in the presence of a catalyst.

The characteristics of biodiesel depend on the feedstock: for example, tallow produces biodiesel that typically has almost the same cetane level as diesel, but canola may produce biodiesel with around 90 percent of diesel's energy level.

Biodiesel has excellent lubricity, which is good news for injection system components and a higher flashpoint than diesel, making it safer to handle. Biodiesel is also more biodegradable than diesel.

Biodiesel in your 4x4

The world of biodiesel is changing fast and Australia is rapidly catching up. You've probably already bought a five percent blend of biodiesel from fuel pumps without knowing it.

The Federal Government has granted biodiesel producers a gradually-reducing excise concession until 2016 and a capital grants scheme.

However, the Biodiesel Association of Australia (BAA) says that the biodiesel production excise of more than 38 cents per litre is causing great uncertainty for the future of biodiesel in Australia. The BAA says there must be a subsidy for biodiesel, similar to those offered to other fuels in their development phase, such as LPG.

Nevertheless, plans have been announced by specialised biofuel producers to boost total Australian biodiesel production to around 650 million litres per annum over the next two years, with BP planning a further 110 million litres of biodiesel to be produced at its Brisbane oil refinery from tallow.

The biodiesel industry aims to capture around five percent of the diesel fuel market in 2010.

The 2008 Position Paper on biofuels canvassed the Australian fuel quality situation and concluded that the current unlabelled B5 situation would continue and that Australia would work towards a B10 blend, following the initiative set by the EEC.

In the meantime, 4x4 owners are still unclear if they can use biodiesel concentrations higher than B5 in their diesel engines without voiding warranty. Generally, the answer is 'no'. Those who want to run higher concentrations than B5 firstly need to establish a reliable biodiesel supply. The next step is to be certain that the supply is of consistent quality that meets the fuel standard required by the engine maker. You need written approval from the engine maker to use biodiesel blends above B5 in your engine.

You can buy an awful lot of diesel for the replacement cost of an engine.