



Boating Industry Association
of New South Wales Ltd

Consumer Guide

BIO-FUELS – A SAFETY HAZARD FOR BOATERS

As in other jurisdictions including Europe and the USA, the NSW Government mandates the blending of ethanol and bio-diesel with petrol and mineral diesel fuels. Behind the policy is the need to reduce green house emissions and the reliance on imported oil. The sale of all ethanol blended petrol requires it to be labelled with the prefix letter E. Petrol containing 10% ethanol, for example, must be labelled E10. The sale of biodiesel blended diesel, however, only requires labelling if the biodiesel blend exceeds 5%. Diesel with higher percentage blends must be labelled with the prefix letter B so that diesel containing 20% biodiesel, for example, would be labelled B20.

The use of ethanol and biodiesel is ideal in applications where the cycle time (the time it takes to burn a tank of fuel) is relatively short – commercial and public transport being good examples. But, a number of characteristics specific to each of these fuels make them unsuitable for recreational boating. Boaters should be aware of what these characteristics are, and take this into consideration when refuelling a boat.

ETHANOL BLENDED PETROL:

1. Particularly in a marine environment, ethanol-blended petrol has a very short shelf life. Ethanol is hygroscopic (absorbs moisture) and has a tendency to bind with water molecules, and then separate from the petrol. This can occur in matter of weeks especially in hot & humid conditions, but is more likely where fuel is stored for longer periods. If drawn into the combustion chamber of the engine, this ethanol & water combination can bring about engine failure as it has poor "burn" qualities.
2. As the ethanol & water combination separates from the petrol, a by-product called "boundary-layer" can be created. This by-product is highly corrosive and can damage rubber and plastic components in the fuel delivery system, and even some aluminium and fibreglass fuel tanks. Also, ethanol is a solvent which can mobilise deposits in fuel tanks and lines which may cause blockage of fuel filters and fuel delivery systems.
3. Whilst some marine engines are designed for use with ethanol-blended petrol, some components in fuel systems, as well as older engines, are susceptible to damage as outlined above. For these reasons, ethanol-blended petrol should not be used in boats.

For your safety and the protection of your engine & fuel system, boaters should ensure that only ethanol-free petrol is used onboard. Options include higher octane rated or premium petrol, and ethanol-free regular grade petrol available from some marinas.

BIODIESEL BLENDED DIESEL:

1. The addition of "bio" components to mineral diesel reduces the shelf life of the fuel. Even in concentrations as low as 5% of volume, the blended fuel can "breakdown" in as little as six months. Breakdown of the fuel can result in accelerated engine wear, poor lubrication, and blockage of oil and fuel filters. For vessels voyaging offshore, especially yachts and others which turn over fuel slowly, this can be a serious safety issue.
2. Biodiesel exhibits poor oxidation stability and is an excellent medium for microbial growth, sometimes called "diesel bug". Diesel bug can itself cause blockages in lines and filters, while rubber and plastic components in the fuel system can be damaged by both aggressive forms of diesel bug, and the solvent properties of some bio-components commonly found in bio-diesel.

For safety and the protection of your engine & fuel system, boaters should insist that their marine-diesel supplier provide only 100% mineral diesel. As diesel fuels with up to 5% concentration of bio-components are not required to be so labelled, buyers should always ask the retailer to confirm that diesel fuel for marine use is bio-free.

With thanks to

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