

Ethanol Blends in Petrol

A Position Paper Produced by the
Service Station & Convenience Store Division



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Ethanol is a viable option as a fuel additive, particularly when the experts consider it as a suitable replacement for Methyl Tertiary Butyl Ether (MTBE). MTBE is a product currently used in some fuels as an oxygenate and octane enhancer that has the serious downside of potentially being a major polluter, if and when it comes in contact with groundwater.

As an oxygenate and octane enhancer, ethanol certainly can assist in the reduction of air polluting emissions, while at the same time, maintaining (and perhaps even improving), engine performance in the modern vehicle.

However, the levying of an excise of 38.14cents per litre (cpl) on the product at this early stage of its development, as a substitute fuel, is considered premature. Coupled with a rebate of the same amount to local producers, this has only served to create a potential monopoly. There are currently only two volume producers of industrial ethanol in Australia, CSR and Manildra, and it is only Manildra that is a major supplier to the automotive fuel industry.

BP is also a producer of ethanol with six sites operating in Queensland retailing a 10% blended product that is clearly advertised at the pumps. This consumes their current output giving them only a very small market share at present.

The jury is still out on the best percentage of blend for ethanol/petrol to be sold and, until the independent research, currently being conducted for the Federal Government is finalised, the limit recommended by both oil companies and vehicle manufacturers of 10% should be utilised where blending of ethanol is implemented.

Currently 10% ethanol blend is sold in the USA without voiding manufacturers warranty, and this would appear to be the position of Australian manufacturers also.

An interim ethanol allowance of up to a 10% maximum blend, should be inserted into the National Fuel Standard to provide certainty for consumers, at least until the results of the current Commonwealth testing are published.

Any higher percentage of ethanol requires modification of vehicle fuel systems and engine components to overcome potential damage to paintwork and non-ferrous or plastic components. (Generally through the use of specialist materials such as stainless steel and viton).

Such modifications are a requirement for vehicles exported to countries where 20% + ethanol blends are sold, thus protecting the operational integrity of the vehicles. It is our understanding that such modifications render the vehicle unsuitable for straight ULP (91octane) use, or even ULP with a 10% ethanol blend. Therefore any ethanol blend should be limited to 10% maximum. Particularly as ethanol blended product is currently in limited supply.

Even then, a 10% ethanol blended product will give a reduction in fuel economy of approximately 2~3% and greater mixture percentages will give even less fuel economy.

The blending of ethanol into automotive fuel should definitely not be mandated. A free market must exist.

However, if ethanol is used, all pumps dispensing ethanol blended fuel should be clearly labelled and include the percentage of the blend (to a maximum of 10%), so that motorists can make an informed choice as to which product they wish to purchase.

We note that the Australian Biofuels Association has produced such identifying decals, and this type of decal must be affixed to pumps dispensing fuel with an ethanol blend. All such blending should be carried out at the terminal to ensure quality control of the product and appropriate excise collection.

Splash mixing of ethanol blends should NOT be permitted under any circumstances as ethanol is heavier than petrol and will drop to the bottom of the tank resulting in an "ethanol rich" product being dispensed to the customer, exacerbating the issues outlined above.

Given that all petroleum products contain socially sensitive component chemicals, all fuel bowsers should display a decal listing each component chemical being dispensed.

If oil companies claim to be selling you 'petrol' and they are actually blending ethanol into it that is misrepresentation of the product and is not acceptable. If they put more than 10% in the fuel and the car manufacturers void the warranty when such a fuel is used, there would appear to be a legitimate consumer issue that requires attention.

In the case of 2-Stroke "Small engines", 10% ethanol/Unleaded blended fuel is believed to be compatible with all fuel system components manufactured in the last 15 years. Although the increased oxygen in a 10% ethanol/Unleaded blended fuel "leans-off" the air/fuel ratio, this may require carburettor adjustment or change in jet size to compensate for a potential lean mixture. Older engines may be affected by the aromatics in unleaded gasoline and if the fuel tank is dirty, the solvent action of the ethanol may loosen rust and contaminants that have built up over the years. This may necessitate the tank being cleaned and the filter changed, (if a fuel filter is fitted).

Gilbarco, manufacturer and servicing contractor of fuel dispensing equipment has released a statement that they will not honour any warranty on pumps if ethanol blends higher than 10% are dispensed, through their equipment.

The materials compatibility of underground petroleum storage tanks manufactured after 1981 are compatible with petrol blended with up to 10% ethanol. Some older tanks may have to be lined to prevent small leaks and extend their service life.

Therefore, a 10% limit is essential for environment reasons.

A 10-micron filter is recommended for the retail dispenser because when tanks are initially used to store ethanol-petrol blends, the high solvent action of ethanol has the potential to loosen lacquer on tank walls and sediment in the bottom of the tank. These filters may also need to be changed shortly after ethanol use begins.

Most lining materials are compatible with ethanol-petrol blends, however, epoxy or polyester resin based materials used in the late 1970s and early 1980s are not.

Any water in the underground tank will mix with the blended fuel and cause the ethanol to separate from the petrol and again, all the problems associated with an "ethanol rich" product will arise.

Summary

1. An interim ethanol allowance of up to a 10% maximum blend should be inserted into the National Fuel Standard to provide certainty for consumers, at least as an interim control measure until the results of the Commonwealth testing program are concluded.
2. Where ethanol is blended with other fuel products, all pumps dispensing an ethanol-blended product must be clearly labeled and include the % amount of the blend (to a maximum of 10%).
3. A free market must exist.
The blending of ethanol into automotive fuel should definitely not be mandated.
4. Splash mixing of ethanol blends should NOT be permitted under any circumstances.
5. 10% ethanol blended product will give a reduction in fuel economy of approximately 2 ~ 3% and greater mixture percentages will give even less fuel economy.
6. Ethanol blends above 10% have the potential to void car manufacturers warranty and will void any dispensing equipment warranty due to its corrosive/solvent potential.
7. A 10% limit is essential for environment reasons, due to potential damage to alloy engine components and older steel and epoxy/resin lined underground storage tanks.
8. Clean "dry" tanks are essential for safe, efficient storage of ethanol-blended fuels

Given all the above issues, if ethanol is accepted, as a product to be blended with petrol the mix should be no greater than 10% ethanol. All ethanol-blended fuels must be clearly identified and, such a mix should under no circumstances be mandated, freedom of choice must prevail.



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