

IMPORTANT NOTICE ABOUT ETHANOL

The use of ethanol in fuel is increasing as an alternative to petroleum based fuel and used in reformulated (oxygenated) fuels, however, some drawbacks you may encounter to this technology for use with marine fuel tanks are:

- Corrosion of metal parts
- Deterioration of rubber or plastic parts
- Fuel permeation through rubber fuel lines

What is Ethanol?

- Ethanol is an alcohol made from sugar cane, wheat and many other organic materials
- Ethanol is often blended with gas (E10) and has been used in the automotive industry since the early 1980s

Why E10 Blends?

- Ethanol can be used to meet EPA requirements for a cleaner burning fuel
- Ethanol slightly improves Octane Rating
- Ethanol can help reduce our dependence on foreign oil

E10 Blend - Properties

- E10 absorbs water readily and easily
- If sufficient water is absorbed, "phase separation" can occur-water and ethanol will settle to the bottom of the tank and fuel will be on top



- Phase separation cannot be reversed with agitation or fuel additives
- Boundary layer can contain corrosive compounds which can cause corrosion in aluminium fuel tanks

E10 Blends - Compatibility

- Water contamination of fuel is the big issue and concern
- The best advice we have for customers is to empty the fuel tanks for long term storage. Alternatively, keeping the fuel tank full reduces the amount of exchange between the fuel and air that might bring in condensation

Phase separation essentially means that the ethanol in the fuel has attracted water (usually already present from condensation and/or other sources) into the fuel mix. When the right amount of water enters the mixture, most of the ethanol and water will tend to separate from the fuel (into a different "phase") and drop to a lower level or layer inside the tank (water is heavier than fuel). If this layer of

concentrated ethanol and water is drawn into the engine's fuel system, significant damage can occur. Further, the level at which phase separation occurs is determined by a number of variables, one of which is the temperature of the environment. This may help to explain why some regions of the country may be more affected by ethanol than others

Ethanol has very different solvency behaviours than fuel and is a proven contributor to the deterioration of certain rubber and/or plastic components. Telwater is aware of this potential and is constantly working to implement material improvements to better withstand the effects of ethanol. Telwater continues to monitor the ethanol situation worldwide and makes every effort to upgrade materials as necessary to ensure the continued reliable, durable operation of all of its products.

