

# ARE YOU READY FOR E10?

By Bob Stearns – Boat Digest



Those of us older boat owners who suffered through the fuel shortage of the early 1970s will probably remember gasohol. Experts told us that adding 10 to 15 percent ethanol to gasoline would free the U.S. from the yoke of importing vast quantities of foreign oil (sound familiar?).

Not long after gasohol entered the market, horror stories about the damage ethanol could do to marine engines and fuel systems, especially outboards, circulated throughout the industry.

As many of you will recall, that fuel crisis evaporated as quickly as ethanol from an open container, and within a matter of months, concerns for ethanol's effect on the boating scene pretty much vaporized as well.

Meanwhile, a few locations in the U.S. have routinely sold a gas/ethanol blend, and the marine industry has altered the fuel-system components to survive this liquid environment.

Well, guess what! Gasohol is back, only now we call it E10 because it is a mix of 10 percent ethanol and 90 percent gasoline. Within a matter of months after you read this, all gasoline sold in this country will be E10. This is because last year the feds outlawed MTBE (methyl tertiary butyl ether), used for decades as an additive to make gasoline burn more cleanly, because it is carcinogenic.

Although the ethanol in E10 produces few dangerous emissions, it still brings some baggage that boaters would rather not tote. Ethanol is the popular name for 100 percent pure ethyl, or grain, alcohol (highly toxic; as an ex-lab rat I strongly recommend you do NOT try to drink the stuff!), and it is hygroscopic (absorbs water). If it absorbs enough water to become saturated, this water/ethanol mix separates from the gasoline and settles to the bottom of the tank (called phase separation).

Unfortunately for fuel-injected engines (most 4-stroke outboards and inboards today are), water can completely destroy the injectors. Carbureted engines aren't exempt - their jets can get clogged with the stuff too.

## Old-Gas Blues

Tanks that have been allowed to retain significant amounts of older (six months or more) gasoline, and particularly those that have also been subjected to a significant amount of moisture condensation inside, are far more likely to have deposits of gum, carbon, resins and rust caused by the water. Gasoline begins to deteriorate from the minute it is formulated. By six months under the right conditions (heat and humidity), it can have gone downhill far enough to begin forming

deposits. Water exacerbates this problem, and ethanol can dissolve these deposits sufficiently for them to get into the fuel system and cause serious damage to the injectors.

## **An Ounce of Prevention**

For over six years now, I've been adding a very small quantity of a product called PRI-G (made by Power Research Inc, [www.priproducts.com](http://www.priproducts.com/) (<http://www.priproducts.com/>) to the tank each time I refuel. A 16-oz bottle (about \$20) treats 256 gallons of gasoline, so the cost is less than 8 cents per gallon. PRI-G is a non-alcohol long-term fuel stabilizer, which is especially important where E10 is concerned. But also very essential, PRI-G is a carbon dispersant, particularly good for outboards because they are sensitive to carbon buildup in the cylinders.

Fuel stabilizers that utilize alcohol to absorb water are not a great idea for E10 gasoline, says Frank Kelly, Mercury Marine's resident fuel expert, because of the ethanol already in E10, the potential for phase separation is even greater. Outboards, by the way, have for many years now been built with components that will handle ethanol.

Stabilized fuel doesn't deteriorate into damaging deposits. Plus, if you can always keep water out of the tank, you should not have any problems with rust or corrosion. And by far the best way to do this is to keep the tank topped off at all times so there is no room for moist air to get inside and cause condensation. So, if at all possible, do what I do: fill the tank at the end of the day, rather than just before you start out. I hate to waste time buying gas on the way to go fishing, anyway.

Because of E10's hygroscopic tendencies, it will be a good idea to pay particular attention to your in-line water separator and replace the filter element if it shows any signs of clogging or losing efficiency. And if you have an EFI engine and experience any problems with microscopic particulates getting through, consider using a filter element that blocks anything 10 microns or larger (most water separators only block 25-30 microns or larger). If the clogging problem is significant, consider having the tank cleaned. It's far cheaper than a major engine repair.

If all these years you've been diligent about keeping your fuel stabilized and the tank free of condensate, you'll likely not notice any difference after the fuel changeover. But if you haven't been as careful about this as you should have, it's not too late to start right now.