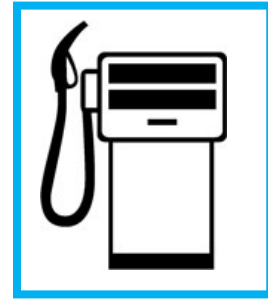


IMPORTANT INFO for BOATERS

ABOUT NEW GASOLINE & DIESEL FORMULATIONS



Marine fuels have changed formulations in recent history to conform to federal EPA requirements. The price of fuel is an obvious concern, but there are other issues with today's fuels that may affect your engine, fuel system and maintenance schedules.

GASOLINE ISSUES: Some gasoline is now blended with ethanol. Newer gasoline engines have been designed to be able to run safely on blends of up to 10% ethanol (E-10).

- Ethanol acts as a solvent which can cause failure of fiberglass fuel tanks and fuel system blockages to filters, injectors, and carburetors. **Tanks and fuel system should be inspected for contaminants regularly and some fiberglass fuel tanks (mostly pre 1985 vintage) may need to be replaced.**
- Ethanol can increase fuel contamination by water adsorptionwater is not your friend in fuel! **Make sure you have a good fuel-water separator filter and spare filters. Keep an eye out for water in your fuel tank.**
- Less stable ethanol blended fuel can eventually lead to separation of the ethyl alcohol and gasoline causing potential engine damage and/or lower fuel efficiency. **Since degradation can happen quickly, try to keep the fuel as fresh as possible (less than 60-90 days) and stabilized with a non-alcohol based stabilizer. Use caution with fuel additives that claim to prevent the fuel separation, they can be ineffective and may add damaging amounts of glycol based chemicals to your system. If separation does occur it is best to remove the old fuel and replace with new.**
- Ethanol blended gasoline does not mix well with regular gasoline. **Ask what product you are buying at fueling stations – pumps dispensing E-10 are supposed to be labeled. If you can't avoid buying E-10 gas, try to use up as much old gas in your tank as possible to try to avoid problems such as fuel filter plugging.**

DIESEL ISSUES: Diesel sold for marine use must now be **Low Sulfur Diesel** (LSD = <500 ppm) but most commonly available is the ultra low sulfur diesel (ULSD = <15 ppm sulfur)

- Lower sulfur content may cause seals to leak on older marine diesel engines. **Check with a marine mechanic or marine engine manufacturer to find out if your engine model might be prone to this problem.**
- Lower sulfur diesel tends to be less stable and may be prone to bacterial growth and higher moisture content. This problem can cause filters to plug. **Regular use of stored diesel can help alleviate stability issues. Make sure you have a good fuel-water separator filter and spare filters. Inspect storage tanks and filters regularly for water and sludge. Check with your marina or boatyard to find out what detergents, additives and lubricants may have already been added by the fuel supplier. You may want to consider installing a fuel polishing system on board. When replacing fuel tanks it is helpful to have inspection ports on the tanks.**

BIODIESEL ISSUES: Diesel may be blended with biofuels (usually under 20%) and sold as biodiesel which has better lubrication properties than available types of low sulfur diesel

- Biodiesel also has storage stability issues which can cause bacterial growth. **Regular use of stored biodiesel can help alleviate stability problems. Inspect storage tanks and filters for bacterial growth or sludge. Keep spare filters available. Check with your mechanic or marine engine manufacturer to determine which biodiesel blends are approved for your engine.**

SUMMARY: Today's fuels are less stable. Boat owners should try to use and replace fuel frequently, especially before laying the boat up for the winter. The fuel system should be inspected more frequently than in the past in order to avoid problems before you leave the dock or mooring. Fuel additives may help stabilize and improve the quality of your fuel, but it is best to check with your professional marine mechanic or engine service manual before adding any 'miracle' products to your fuel. We hope that this information will help you avoid problems and keep boating fun!

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mechanic for more technical
information