

# ETHANOL 101 • WHAT YOU NEED TO KNOW ABOUT ETHANOL FUEL



## 4 MAIN PROBLEMS WITH ETHANOL FUEL

### PROBLEM 1: DEBRIS IN FUEL

Gums rapidly form in the fuel tank and fuel delivery systems as ethanol fuels age. However, ethanol is also a powerful solvent that will strip away and disperse this build up back into the fuel as large, performance-robbing particles. This leads to clogged filters, injectors and carburetors.

**STAR TRON® SOLUTION:** Star Tron®'s enzymes break down debris into sub-micron sized particles that can be easily burned during the combustion process, restoring full performance.

### PROBLEM 2: EXCESSIVE WATER IN THE FUEL AND PHASE SEPARATION

Ethanol attracts moisture from the atmosphere, forming an ethanol/water solution mixed in the gasoline. E-10 fuel will naturally hold .5% water in suspension, but when water levels exceed this threshold, or when the fuel cools significantly, the water/ethanol mix drops out of suspension. This is phase separation. Excessive water in the fuel tank causes engines to run rough, stall, and can lead to internal damage to engine components. Ethanol provides a significant amount of the fuel's octane, so when the ethanol/water solution separates and drops to the bottom of the tank, the remaining fuel is left without enough octane to properly operate the engine. Additionally, the ethanol/water solution can become partially combustible, which can lead to engine damage.

**STAR TRON® SOLUTION:** Star Tron®'s enzyme formula reduces interfacial surface tension between fuel and water. The molecular cluster size is greatly reduced, allowing more water to be dispersed throughout the fuel. These sub-micron sized droplets are safely eliminated as the engine operates. Star Tron®-treated fuel helps prevent phase separation by allowing more water to be burned off than with untreated fuel, drying out the tank and preventing water buildup.

### PROBLEM 3: ETHANOL FUELS BREAK DOWN QUICKLY

Over a short period of time ethanol fuel begins to break down. As ethanol and other components evaporate, the fuel loses octane and becomes "stale." This causes hard starts, pinging and engine knock, which robs your engine of power and can cause damage.

**STAR TRON® SOLUTION:** Star Tron® is a powerful fuel stabilizer which helps prevent fuel breakdown for up to two years. This results in easier starts and prevents pinging and knocking. Star Tron® improves octane levels of sub-standard, non-spec or old fuel and in many cases can rejuvenate stale fuel, restoring it to serviceable condition.

### PROBLEM 4: ETHANOL CAUSES LOST POWER, PERFORMANCE AND DECREASED FUEL ECONOMY

Ethanol fuel does not produce as much energy as traditional fuel. This results in inefficient combustion, decreased performance, reduced throttle response and poor fuel economy.

**STAR TRON® SOLUTION:** Star Tron®'s enzyme formula helps to break apart large clusters of fuel molecules, creating more surface area. This allows additional oxygen to react during combustion, which results in a more complete burn of the fuel, improved fuel economy, engine power, throttle response and reduced toxic emissions. Star Tron® removes carbon deposits, keeping your engine clean and operating at peak performance.

Star Tron® is a unique, multifunctional fuel additive that addresses all ethanol issues. Star Tron® has been solving fuel problems for boaters across the US since 2003. It will improve the performance of: boats, cars, trucks, motorcycles, snowmobiles, ATVs, PWCs, generators, lawn & garden equipment and all other gas-powered engines. Star Tron® is safe for use in all 2 and 4-cycle engines under all conditions, even in ethanol fuels. Star Tron® is an ideal all-season, all-purpose additive, and does all this at one of the lowest costs of any fuel additive.

Be careful of what additive you use – many contain alcohol. Adding more alcohol to ethanol fuels can lead to engine problems. Read the MSDS of any fuel additive before using it with ethanol fuel. Star Tron® does not contain any alcohol and is 100% safe for use in all ethanol blends. Star Tron® is easy to use, effective and cannot be overdosed.



### Today's Fuels Demand New Additive Technology

To learn the entire Star Tron® story and to find the nearest retailer, log onto [WWW.STARTRON.COM](http://WWW.STARTRON.COM) or call (800) 327-8583

