

# Premium Select for Ethanol Blended Gasoline

**Phaser 3000**  
**Laser 3030**

**Protect-O-Lube 400**  
**Protect-O-Lube Plus 403**

With the increasing use of up to 10% ethanol in all grades of gasoline and the ever increasing push towards E85 fuel, there are numerous drawbacks to ethanol blended gas as well as ethanol based fuel such as E85 (85% ethanol, 15% gasoline) to be aware of.

Ethanol is a very effective "consumer" of water or moisture from condensation. It is so effective that when all available supplies of water in a tank have been consumed, ethanol will actually attract or draw additional water into its environment from the atmosphere. The term for this action is "Hygroscopic".

Drawbacks to water and/or ethanol in fuel include but are not limited to the following:

- Potential for "Phase Separation" – gas and ethanol separating; creating layers or phases of different octane ratings and different levels of ethanol concentration
- Water allows for rust, corrosion and scale
- Increased vapor pressure; increased rate of evaporation
- Poor storage stability
- Highly reduced upper cylinder lubrication
- Increased stress on piston rings (compression ring specifically)
- Lower power and fuel economy
- Power robbing deposit formation

The use of specific Premium Select Products can help overcome or eliminate the above listed drawbacks.

Dispersants will help to prevent phase separation. Corrosion inhibitors stop rust and scale. These products will help to stabilize the vapor pressure and greatly enhance storage stability. Oxidation inhibitors stop fuel breakdown and polymerization in its tracks. Oiliness additives lubricate the upper cylinder area and allow peak piston ring flexibility for maximum performance. Octane boosters raise octane levels back to engine required levels, which can boost power and fuel economy in the process.

Detergents clean up and eliminate deposit formation in the combustion chamber. Additionally, powerful acid neutralizers stop corrosive wear and help prevent the formation of carbon deposits in the combustion chamber. And lastly, these products are very effective in the control and dispersion of water accumulations. In fact, Phaser 3000 will not only disperse but totally absorb up to 400 ppm of water when used at a ratio of 1:500. The amount is linear so as the treatment dosage increases, the amount of water dispersed increases.

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Below is a chart showing the Premium Select Products, Protect-O-Lube 400, Protect-O-Lube Plus 403, Fuel Stabilizer Phaser 3000, and Octane Booster/Detergent Laser 3030, with the specific ethanol and/or water-related problems for which each product is recommended. All offer excellent performance in ethanol blended gasolines.

PERFORMANCE PARAMETER	400	403	3000	3030
Phase separation reversal/prevention (due to excessive water)			X	
Superior water absorption agent			X	X
Moisture dispersion	X	X	X	X
Moisture accumulation prevention	X	X	X	X
Octane boost				X
Deposit/carbon prevention and/or elimination	X	X	X	X
Detergent certified under final rule				X
Rust/corrosion/scale prevention	X	X	X	X
Storage stabilization	X	X	X	X
Upper cylinder lubrication	X	X		
Acid neutralization	X	X		
Oxygenated compound	X	X	X	X