



What are the warning signs when using oxygenated gasoline?

In general, be aware that winter gasolines are different, and the 2-cycle engine can be damaged by their use under certain conditions. Take care to keep moisture (water) out of your fuel system, and agitate (shake) the gas/oil mixture just prior to use. Make sure the fuel valve is off when the engine is not running for any extended period of time. Look for signs of water-oil emulsification such as a milky-white appearance of fuel in the fuel filter and/or carburetor.

Oxygenated Gasoline – Materials Compatibility?

Deterioration of elastomers and plastic parts is not expected to be a problem with current production engines. For older engines, some problems have occurred with elastomeric parts, needle valve tips and seats, fuel lines, gaskets, etc. , when they were first exposed to oxygenated gasoline. It's a good idea to frequently inspect the fuel system for leaks and for deteriorating elastomeric parts when you operate an older engine on oxygenated gasoline. There is also the possibility of leaks after you change back to conventional gasoline; seals that were swelled by oxygenated gasoline may shrink. Some manufacturers report corrosion of metallic fuel systems when gasoline oxygenated with alcohol was used in older engines. Except for periods of prolonged storage, this does not appear to be a concern with late model engines. Corrosion problems may be aggravated by the phase separation of a gasoline oxygenated with alcohol. The alcohol/water phase tends to be more corrosive than the oxygenated gasoline itself.

What is the 'leaning effect' when using oxygenated gasoline?

Compared to a conventional gasoline, oxygenated gasoline results in a leaner air/fuel mixture. This causes some engines to run rough. Also, engines may run hotter on lean mixtures, which, in the extreme case, can result in engine damage. Be aware of this – you may have to go to a larger jetting.

How do I practice good fuel management?

Match your purchases to your consumption. Don't buy more gasoline than you plan to use in two weeks. Store gasoline in a tightly-closed container, in a cool, dry, place (Preferably in a metal container).

What is Phase Separation?

Gasoline oxygenated with alcohol readily takes up water when it is present. The water may be condensed out of humid air, or be a contaminant in the fuel system. Dissolved water will not interfere with the engine operation. However, if enough water is present, gasoline oxygenated with alcohol will separate into two liquid phases: a top phase which is almost all gasoline (and oil, in the case of 2-cycle fuel), and a bottom phase which is almost all alcohol and water (phase separation is not a problem with gasoline oxygenated with MTBE). Phase separation may make the engine difficult or impossible to start. To solve the problem, replace the separated mixture with fresh gasoline. The situation with the greatest potential for damage is phase separation in the fuel tank of a 2-cycle engine using premix gas/oil. If the engine is able to start and run in the alcohol/water phase, it won't be lubricated – almost all the engine oil will be in the gasoline phase. In some cases, particularly in cold weather, an emulsion can form that can clog fuel filters and cause carburetor slides to stick. To minimize the chance of phase separation, keep water out of your equipment's fuel system, and practice good fuel management. You can reduce the possibility of water pickup when your equipment is not in use if you keep the fuel tank full, and close the tank vent. Always agitate (shake) your fuel just prior to use! If a gasoline is of poor quality, or the storage conditions are adverse, gasoline can oxidize and form gums over periods of several months. These changes can increase

engine deposits and filter plugging. There are reasons to suspect that oxygenated gasoline may form gums more readily than conventional gasoline, but actual evidence is limited. A safeguard recommended by some manufacturers is the use of name-brand gasolines from companies recognized for the quality of their products. Another safeguard is good fuel management.

[Do I change my premix ratio with oxygenated gasoline?](#)

Unless your owner's manual instructs otherwise, add the same amount of a premium-quality 2-cycle oil to oxygenated gasoline as you add to conventional gasoline. The oil will blend with oxygenated gasoline easily – oil separation will not occur except as noted in the section regarding 'phase separation'.

[Can I use oxygenated gasoline in my motorcycle?](#)

Generally, manufacturers have told us that their motorcycle gasoline engines are designed to operate on any automotive gasoline, including unleaded gasoline and oxygenated gasoline. The manufacturer's prefer the use of conventional gasoline when it is available, but most allow oxygenated gasoline up to 10% ethanol or 15% MTBE. Many manufacturers have had little or no experience with gasoline oxygenated with MTBE. Consequently, they do not discuss it in their recommendations.

[What are the concerns about using Oxygenated Gasoline?](#)

Oxygenated gasoline will perform satisfactorily in most engines under normal conditions of storage and use. However, you should be aware of the potential problems – two involving gasoline itself, and several involving gasoline/equipment interactions. Follow the suggested precautions if they apply to your situation.

[What is Oxygenated Gasoline?](#)

Oxygenated Gasoline is a mixture of gasoline and one or more combustible liquids which contain oxygen. At present, two different classes of oxygenates are being added to gasoline: alcohols and ethers. Ethanol (grain alcohol) is alcohol most commonly added to gasoline. Methanol (wood alcohol) is also utilized, but to a much lesser extent, as it's solubility in gasoline is limited. At present, methyl tertiary-butyl ether (MTBE) is the principal ether being added to gasoline.