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Company says it has Rx for ethanol sludge woes
Melanie Winters
m.winters@tradeonlytoday.com

A company known for its boat cleaning products says it has a solution for some of the gas tank and engine problems associated with ethanol-enhanced gasoline.

Fort Lauderdale-based Star Brite recently introduced Star tron, an enzyme-based fuel additive, to the recreational marine industry. Star Brite provides private label retailing for Solpower Corp., a San Pedro, Calif.-based manufacturer of fuel enhancement products.

Ethanol, usually in concentrations of 10 percent, is poured into the tank to reduce emissions. It is used to replace methyl tertiary butyl ether, which has been linked to groundwater contamination.

However, last spring boatyards, boat owners and marine surveyors began reporting fuel and engine problems that have been linked to ethanol. In most cases the problem is clogged fuel filters. The Boat Owners Association of the United States has linked some of these problems to MTBE left in the tank. When ethanol is mixed with MTBE formulations, gunk builds up in the gas tank.

Water in the gas tank can cause similar problems.

"Ethanol is a very unique component," says Jeff Tieger, vice president of Star Brite. "It will grab onto water-based solubles. The alcohol grabs onto the sludge in the bottom of the tank and softens it. This sludge ends up clogging fuel filters.

"That is becoming a major problem," he says.

Ethanol has an electric charge that attracts other polar molecules, explains Matthew Cohen, general manager of marketing and technical services for Solpower. Water sucks right into the fuel. Because water is heavier than gasoline, it collects at the bottom of the tank and turns into a gel. At about 0.5 percent water, this is called phase separation, and then that phase coagulates in cold weather, Cohen explains.

This ends up blocking filters.

If there is no water separator in the fuel line, the water goes into the injectors/carburetor and the engine does not run properly, says Tieger. In extreme cases the engine stops running and will not restart.

Another problem with ethanol-enhanced gasoline is that alcohols are excellent solvents for dissolving tars and other sediment found in many marine tanks. This means that any residue left in a boater's tank will be loosened and picked up by the fuel pump. Under some conditions, the dissolved material from the fuel tank walls thickens the gas, resulting in a gel consistency which also clogs filters.

Tieger says the enzymes in Star tron are formulated to stabilize the fuel and break the sludge into microscopic materials so the fuel doesn't gel.

"Special enzymes stabilize fuel chemistry, preventing the formation of gums, resins, varnish and sludge," according to Star Brite marketing materials. "The same enzyme package prevents water from combining in the fuel and forming a distinct layer. The water is then safely burned away and

microbial growth that forms at the boundary of fuel and water layers is prevented. Any existing microbial growth is dispersed and either caught in the fuel filter or burned as part of combustion.”

“This is not lab tested,” Cohen concedes.

However, he adds, “We have ASTM lab tests on removing water, we have lab tests on increasing octane, and we have lab tests on lowering gums and particulate contaminants, so it would logically support the evidence that Star tron can do this.”

Cohen says ethanol also hurts fuel economy, in some cases by as much as 10 percent. He says that Star tron, working on the 90-percent gas fraction, will counter the effects.

“All in all, ethanol is not a good fuel for older boats, and increases maintenance issues in all boats,” says Cohen.

The one problem Star Brite will not resolve, however, is the deterioration of older fiberglass tanks.

BoatU.S. has found an engine-killing sludge in tanks built prior to the mid-1980s. The association theorizes the sludge could be the product of a chemical reaction between resin and ethanol. A BoatU.S. laboratory report indicates ethanol dissolves uncured phthalates in the fiberglass.

This is not a problem with newer tanks, which use vinyl ester resins rather than polyester resin, which was used in older tanks.

“The inhibitors the refiners use keep the ethanol from attacking metal, but can’t do a thing about fiberglass,” says Cohen. “If you have a fiberglass tank from pre-1985, just call it quits and yank it out before you blow your engine with hardened deposits. Not even Star tron can remove that baked-on plastic.”