Product One Voice
Q&A

Product: AMSOIL Quickshot™SE
Product Area: Power sports
Created: January 25, 2010
Published Date: April 1, 2010

---

1. **Question:**
   What problems can arise from using degraded fuel?
   Answer:
   Today's gasoline can oftentimes degrade prior to being consumed in many applications. When this fuel starts to break down, it forms varnish, gums, and insoluble debris that are known to clog carburetors, fuel injectors and fuel filters, significantly affecting starting performance and drivability.

2. **Question:**
   How can ethanol be harmful if it is formulated into most pump fuel available in the U.S.?
   Answer:
   Ethanol can cause significant problems in many different applications due to the differences in properties compared to gasoline:
   a. Ethanol is hygroscopic, which means it has a tendency to absorb water.
   b. When ethanol absorbs water, it readily separates from gasoline and, because it is heavier, falls to the bottom of the tank.
   c. The ethanol/water mixture in the bottom of the tank degrades relatively quickly.
   d. Ethanol contains less energy per gallon compared to gasoline. Based on this, many new vehicles have computer systems that sense and correct for high ethanol content. Small engines and most power sports equipment are not programmed to detect this and a lean burn situation results.
   e. When the ethanol rich mixture is pulled into the engine this lean burn increases combustion temperatures significantly, which can lead to severe engine damage.
   f. When a mixture of water and ethanol degrades and creates gums, varnish and other insoluble debris, fuel flow passages can become narrow or plug, significantly affecting engine performance.
   g. When the correct amount of fuel cannot flow to the engine, equipment becomes difficult to start and performance becomes unstable.

3. **Question:**
   How much of an issue does degraded fuel cause with equipment owners?
   Answer:
   Degraded fuel is the number one maintenance issue for small engine and power sports equipment owners today. This issue will intensify in the next few years as ethanol content is increased at the pump.

4. **Question:**
   Why are fuel related problems such a concern in small engines and power sports equipment, while passenger cars and light trucks remain virtually unaffected?
   Answer:
   Small engines and power sports equipment are typically used on an intermittent basis so fuel sits in the tank, lines, carburetors and injectors for extended periods between uses. During this time, it absorbs water,

degrades and causes deposit formation. This results in starting and performance issues. Passenger cars and light trucks, on the other hand, are used more frequently, which limits the amount of time the fuel sits unused.

5. **Question:**
   What starting and performance issues can occur over time even in equipment that is used frequently?
   Answer:
   Even if fuel is run through equipment fairly quickly, it is normal to have issues with carbon build-up on the tops of pistons and slow buildup of material in the fuel injectors or carburetor that can cause performance and starting issues. The carbon buildup on the top of pistons absorbs fuel and when it becomes extreme can cause pre-ignition, rough idling and poor throttle response. Buildup inside injectors and carburetors is common and needs to be cleaned out on a continual basis to maintain peak performance.

6. **Question:**
   How does AMSOIL Quickshot™SE address the problems associated with small engines and power sports equipment?
   Answer:
   Quickshot™SE contains a revolutionary technology that focuses on three issues plaguing small engines and power sports equipment owners: water, ethanol and dirty pump gas.

   It is inevitable that water will ultimately find its way into gas tanks through condensation in tanks open to the atmosphere, gas pumps or any number of conditions. Therefore, if left untreated, contaminated gasoline will lead to starting, performance and corrosion issues. By keeping water in tiny molecules, **Quickshot™SE** safely moves it out of the tank through the combustion chamber where it vaporizes and goes unnoticed by equipment operators.

   Ethanol readily separates from gasoline and ends up on the bottom of gas tanks in a concentration that is rich in ethanol and water. This mixture does not burn well and can also create a lean burn situation. **Quickshot™SE** is designed to keep water dispersed throughout the fuel tank, moving it out as a normal part of operation and ultimately lessening the chance of ethanol separating from the gasoline.

   Dirty pump gas may cause fuel system gum and varnish as well as piston/combustion chamber deposits over time. Pump gas contains varying levels of detergents designed to keep buildup and deposits from causing problems. The lower levels of detergents usually cannot prevent this buildup of deposits, so added cleanup is required for optimum performance over time. **Quickshot™SE** contains unique chemistry that quickly softens and carries away deposits and buildups in fuel systems, injectors and carburetors. In addition, **Quickshot™SE** cleans hard to remove deposits on piston tops, spark plugs and other combustion chamber parts.

7. **Question:**
   How will equipment operators know that Quickshot™SE is working?
   Answer:
   During field tests on the technology, researchers assembled a number of different types of poorly running equipment. The equipment issues included rough idling, cycling difficulty, hesitation, failure to run and poor top end performance. It was suspected that all of the issues were caused by degraded fuel and carburetor/fuel injection problems. After burning one-half tank of **Quickshot™SE** treated fuel, the equipment that was difficult to start and keep running began running efficiently. In extremely dirty equipment, the exhaust smoke turned black as the engine and fuel system cleaned up. **Quickshot™SE** allowed for easy starts and peak performance after extended non-use periods in snow blowers, snowmobiles, ice augers, lawn mowers, outboard motors, weed whackers, motorcycles and generators.

8. **Question:**
   Is there any testing that demonstrates the effectiveness of AMSOIL Quickshot™SE**?**

Answer:
Quickshot™SE was tested in fuel containing 10 percent ethanol to measure its ability to clean and neutralize the damaging effects of water and ethanol separation in pump fuel. In modified ASTM D-6421 testing, controlled plugging of injectors showed a 70 percent flow improvement with **Quickshot™SE** treated fuel. In ASTM D-525 testing, oxidation stability of fuel treated with **Quickshot™SE** improved 44 percent over untreated fuel.

9. **Question:**
How does AMSOIL Quickshot™SE provide sustainable benefits to the environment?
Answer:
Quickshot™SE helps equipment run more efficiently, leading to reduced fuel consumption, reduced emissions, longer equipment life and less fuel-related breakdowns and maintenance requiring solvent based cleanups.

10. **Question:**
How often should AMSOIL Quickshot™SE be used?
Answer:
For best results, treat every tank of fuel with **Quickshot™SE** to prevent breakdown of both straight grade gasoline and ethanol-containing gasoline.

11. **Question:**
Is AMSOIL Quickshot™SE designed for use with E85?
Answer:
No. It is only designed to fight the problems associated with fuels containing low levels of ethanol. E85 should never be used in small engine/power sports without first consulting the owner's manual. Running E85 in this equipment could result in catastrophic failure in a short period of time.

12. **Question:**
What happens if fuel is over-treated with AMSOIL Quickshot™SE?
Answer:
Quickshot™SE contains a unique technology that is a powerful cleaner and effectively fights issues with water and ethanol, prolonging fuel life. One of the other unique features of **Quickshot™SE** is that overtreatment does not have any negative consequences. In fact, the rate of cleanup can be slightly accelerated by increasing the dosage. The recommendations on the label are for optimum treatment of fuel.

13. **Question:**
How much AMSOIL Quickshot™SE should be added per gallon of fuel?
Answer:
The 8-ounce bottle is designed to provide quick cleanup of up to 6 gallons of fuel or long term cleanup/maintenance of up to 12 gallons of fuel. Use the graduations on the bottle corresponding to the size of the fuel tank.

14. **Question:**
Can AMSOIL Quickshot™SE be used in both two-stroke and four-stroke engines?
Answer:
Yes. **Quickshot™SE** is designed and tested with both two-stroke and four-stroke applications.

15. **Question:**
Can AMSOIL P.i.™ Performance Improver be used in four-stroke small engine/power sports applications?
Answer:
While AMSOIL P.i.™ Performance Improver can be used in these applications, it does not provide fuel stabilization, which is one of the main benefits of **Quickshot™SE**. Additionally, it can be difficult to pour in the

correct amount of product. While there are no overtreatment issues with **Quickshot™SE,** AMSOIL P.i.™ Performance Improver can cause issues with significant overtreatment. For these reasons, AMSOIL is encouraging Dealers and customers to refrain from using AMSOIL P.i.™ Performance Improver in small engines and power sports applications.

16. **Question:**
    Can Quickshot™SE be used in gasoline powered passenger cars/trucks?
    Answer:
    Yes. **Quickshot™SE** can be used in any gasoline application, but AMSOIL P.i.™ Performance Improver is a far better choice for gasoline powered passenger cars and trucks. It is specifically designed for these applications. In passenger cars, P.i. will perform better and it is more convenient and economical.

17. **Question:**
    Does fuel need to be stabilized for storage when using AMSOIL Quickshot™SE?
    Answer:
    Quickshot™SE is designed to stabilize fuel between uses and during short term periods of storage. For extended or seasonal storage, AMSOIL Gasoline Stabilizer is recommended.

Jeff Fisher
866-292-4700
www.SyntheticOils.us