



## *Product One Voice*

### *Q&A*

**Product:** AMSOIL Diesel Concentrate Additive

**Product Area:** Specialty Products

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New low-emission engine models with high rates of exhaust gas recirculation have inherent lubricant challenges. These engines dump excessive amounts of soot and acids into an oil, accelerating wear on the cylinder walls. Additionally, new engine oils meeting CJ-4 requirements will have lower sulfated ash content, which controls TBN levels. The new mandate only allows enough sulfated ash content to reach a maximum TBN of eight, making TBN retention even more important. New AMSOIL Diesel Concentrate controls these issues by neutralizing acids during combustion. This minimizes acidic cylinder wear and reduces the rate of engine oil TBN depletion, maintaining engine oil quality longer for better protection.

**1. Question:**

Why did AMSOIL separate the cold flow properties from the Diesel Concentrate (ADF)?

**Answer:**

Combining AMSOIL Diesel Concentrate with a Cold Flow Improver is not cost effective in the summer months, or to AMSOIL customers who live in the south. To keep costs down for customers, AMSOIL Diesel Concentrate no longer includes a cold flow improver. AMSOIL Diesel Concentrate has been reformulated with additional lubricity properties. The new AMSOIL Diesel Concentrate (ADF) is a total system cleaner and lubricity improver for all types of diesel engines.

**2. Question:**

AMSOIL Diesel Modifier has been discontinued; can the new AMSOIL Diesel Concentrate be used in its place?

**Answer:**

Absolutely! No longer are there different fuel additives for heavy- and light-duty diesel engines, simplifying applications for customers. The new AMSOIL Diesel Concentrate meets and exceeds all the requirements for both applications

**3. Question:**

AMSOIL Home Heating Fuel has been discontinued; can the new Diesel Concentrate be used in its place?

**Answer:**

Yes, AMSOIL Diesel Concentrate delivers fuel storage stability, rust protection, water separation, and its exceptional cleaning properties are expected to help keep fuel oil nozzles clean. AMSOIL Diesel Concentrate promotes trouble-free operation. AMSOIL Diesel Cold Flow Improver should be recommended when fuel oil is stored outside.

**4. Question:**

Does the new AMSOIL Diesel Concentrate meet the federal regulations for ultra low sulfur for diesel fuel?

**Answer:**

Yes, and the packaging label states so as regulated by law.

**5. Question:**

The statement found on the back label of the AMSOIL Diesel Concentrate states, "This diesel fuel additive complies with the Federal low sulfur content requirements for use in diesel motor vehicles and non road engines." I thought the laws are specifying Ultra Low Sulfur Diesel fuels?

**Answer:**

A newly effective EPA regulation for diesel fuel additives went into effect on June 1, 2006. This rule requires that all diesel fuel additives SOLD after June 1, 2006, to be labeled with one of the following statements on the container: For those additives with a sulfur content not exceeding 15 ppm sold in containers for use by the ultimate consumer the following statement: "This diesel fuel additive complies with the federal low sulfur content requirements for use in diesel motor vehicles and nonroad engines."

For more information consult: <http://www.aspalliance.org/dieselfuel/index.htm>

**6. Question:**

The old Diesel Concentrate worked well. Why did AMSOIL come out with a new Diesel Concentrate?

**Answer:**

The federal government mandated the use of ultra low sulfur diesel (ULSD) by June 2006 for the year 2007. ULSD contains <15 parts per million (ppm) sulfur where the previous content was <500 ppm sulfur. Sulfur acts as a lubricity agent that helps protect pumps and injectors from wear. As the sulfur content is lowered, so is the lubricity of the fuel. As a result of lower sulfur content, refiners or fuel distribution depots have been forced to add back some lubricity with the use of additives. This additive is expensive and is only blended in the fuel at the lowest additive concentration (LAC). The fuel manufacturers have no incentive to add extra additive, which increases costs, so there is inherent risk of unnecessary wear on injectors and pumps. The new AMSOIL Diesel Concentrate Additive adds back all the lubricity and then some to properly protect diesel fuel components.

ULSD fuel has also shown to create more deposits within combustion chambers than previous diesel fuels. Deposits are detrimental to fuel economy, throttle response, and horsepower. AMSOIL Diesel Concentrate is a powerful detergent that cleans fuel system deposits and keeps the system clean with regular use. By cleaning deposits, AMSOIL Diesel Concentrate has shown to increase fuel mileage up to 5%. Consider that at \$3.00 per gallon for diesel fuel, even a modest three percent improvement in fuel economy equals a savings of \$0.09 per gallon. With a treat rate of one oz. of AMSOIL Diesel Concentrate to five gallons of fuel, at U.S. Retail price, the net treat cost of AMSOIL ADF is only \$0.083 per gallon, bringing the total savings to \$0.007 per gallon and negating the cost of AMSOIL Diesel Concentrate altogether.

AMSOIL Diesel Concentrate is an alcohol-free product that also protects fuel systems against water contamination. It helps prevent fuel/water emulsions and it protects metal against rust. Water can be drained easier and fuel filters are less likely to plug, ensuring drivability. In addition, fuel degradation can cause gums, which increase deposits and the chance of filter plugging. AMSOIL Diesel Concentrate significantly improves the oxidation and thermal stability of diesel fuel.

These are some key advantages of the new Diesel Concentrate among others identified on the data sheet (G-2236). Diesel equipment is expensive and owner/operators prefer to control the quality of the diesel fuel going into their engines rather than rely on the fuel producers. AMSOIL Diesel Concentrate provides outstanding performance in today's ULSD fuel as well as the former 500 ppm version fuel and biodiesel.

**7. Question:**

The claims state that the new Diesel Concentrate helps engine oil maintain TBN. How does it do this?

**Answer:**

TBN depletion is the result of combustion acids. AMSOIL Diesel Concentrate is designed to neutralize acids during combustion to prevent the acids from attacking the TBN reserve in the engine oil. Additionally, acids from combustion cause acidic cylinder wear. By neutralizing acids during combustion, AMSOIL Diesel Concentrate helps control acidic cylinder wear.

These features are particularly important on exhaust gas recirculation (EGR) equipped engines (2002 and newer). By recirculating the exhaust back into the combustion chamber, more acids are introduced, wear increases, and TBN is rapidly depleted. For model year 2007 vehicles, the amount of EGR is being further increased compounding the problem.

**8. Question:**

The new AMSOIL Diesel Concentrate is packaged differently. What changes were made?

**Answer:**

The new AMSOIL Diesel Concentrate now comes in a 16 oz. bottle with a 22 mm opening, making it easy to use in passenger diesel vehicles. The bottles are now natural in color and are stronger and more durable than the old bottles. Graduations have also been added for more effective measuring when dispensing. There is also a new mix ratio, which is 1 oz. of additive to 5 gallons of fluid (one bottle treats 80 gallons of fuel).

**9. Question:**

What is diesel fuel?

**Answer:**

Diesel fuel, like diesel engines, is changing to meet emission and other environmental requirements. Diesel fuel is a blend of petroleum-derived compounds called middle distillates (heavier than gasoline but lighter than lube oil), which may or may not contain additional additives. Other middle distillates include kerosene (Diesel #1) and No. 2 Heating Oil. Diesel fuel is designed to operate in a diesel engine where it is injected with compressed, high-temperature air into the combustion chamber and ignites by compression. This differs from gasoline, which is ignited in a gasoline engine by the spark plugs.

**10. Question:**

What specification requirements of diesel fuel should be of concern and why?

**Answer:**

The specifications you should be concerned with are:

1. Cetane number (ignition quality)
2. Cleanliness
3. Low-temperature operability
4. Stability

The cetane number is a measure of the ease with which the fuel is ignited in an engine. AMSOIL recommends using AMSOIL Cetane Boost (ACB) when the desired result is an improvement in low-temperature startability, warm-up and smooth, even combustion. The cetane number of the fuel should meet the engine manufacturer's minimum recommendation for the type of service required. Most engine manufacturers recommend diesel fuels with a cetane number of at least 40. Diesel fuels sold by reputable marketers meet or exceed this requirement. High performance diesel engines operate best with cetane values of 50.

Cleanliness refers to the absence of water and particulate contamination. This characteristic is important because dirt and water can plug fuel filters and cause severe damage to fuel injection systems because of the close tolerances within fuel pumps and injectors. All diesel engine manufacturers equip their engines with fuel filters to protect the fuel delivery system. Fuel filters should be replaced according to the

manufacturer's recommendations. Some manufacturers also provide filters with drain valves and recommend periodic draining of any water that may accumulate from condensation and careless handling in storage or vehicle tanks. AMSOIL Diesel Concentrate Fuel Additive (ADF) will extend the filter life significantly as it helps prevent the formation of gums, which plug filters.

Low-temperature operability is the ability of the fuel to flow and be pumped through diesel fuel system filters without plugging at low temperatures. Filter plugging due to the presence of wax crystals in the fuel can be estimated by measuring the cloud point temperature or other low temperature fluidity and filterability tests. AMSOIL Cold Flow Improver (DFF) will protect against gelling and also decrease the cold filter plug point (CFPP)

Stability is the term used to describe a fuel's resistance to the formation of gums and insoluble oxidation products. Fuels with poor oxidation stability contain insoluble particles that can plug fuel filters. This may lead to decreased engine performance or engine stalling from fuel starvation. AMSOIL Diesel Concentrate Fuel Additive (ADF) adds stability to diesel fuel.

AMSOIL recommends the use of AMSOIL Diesel Concentrate Fuel Additive (ADF) for improved specification requirements in diesel fuel.

**11. Question:**

Does the AMSOIL Diesel Concentrate Fuel Additive (ADF) improve an engine's performance?

**Answer:**

Yes. By cleaning injectors and keeping them clean, AMSOIL Diesel Concentrate helps to maintain the designed and like new performance of the engine. If injectors have become clogged enough to affect spray pattern, AMSOIL additives will clean the injectors to restore the original pattern, thus restoring performance to like-new levels. They do not raise performance above what the engine maker designed, but again, can save your customer money by ensuring the engine is working as properly.

**12. Question:**

Why is AMSOIL Diesel Concentrate Fuel Additive (ADF) needed?

**Answer:**

Because diesel fuel quality varies greatly. Preventative maintenance of a diesel engine system will save money and time in the long run. Pumps and injectors are expensive to replace. Protect them! Diesel fuel is rising in cost. AMSOIL Diesel Concentrate helps maximize engine efficiency and saves money. AMSOIL ADF improves lubricity, reduces wear, and improves engine-operating efficiency. Your customer will be very happy when you can deliver these types of benefits.

**13. Question:**

Fuel suppliers blend diesel and kerosene for winter. Does this affect treat rates?

**Answer:**

When using a kero blend, ADF should still be used because kero/#1 has very low lubricity, which AMSOIL additives will restore. Again, this will help ensure that the engine is working to the capacity for which it was designed. Plus of course, ADF provides additional features, including detergents, water demulsifiers, anti-oxidant and rust inhibitors. AMSOIL recommends using both Diesel Concentrate Fuel Additive (ADF) and Cold Flow Improver (DDF)

**14. Question:**

Will using ADF void engine warranties?

**Answer:**

No