

Diesel Fuel Update from Stanadyne Corporation

Diesel fuels are changing and as a diesel engine owner or operator you want to know how you might be affected by these changes. You may have heard of Ultra Low Sulfur Diesel. ULSD (also referred to as S15) is now available in North America and mandated for on-highway use throughout the U.S. by the end of 2006. You may also have heard of bio-diesel. This fact sheet will inform you of the advantages and disadvantages of these fuels and how Stanadyne's additives can assist.

Ultra Low Sulfur Diesel Beginning in 2006 diesel fuel for on-highway use must have no more than 15 parts per million sulfur. This is a 97% reduction from the previous limit of 500 ppm. Sulfur is removed from diesel fuel at the refinery by a process called hydro-treating, which also effects the fuel in other ways. The American Society for Testing and Materials (ASTM) publishes the standard for mineral diesel fuel - ASTM D975 which refineries comply with.

Advantages of Ultra Low Sulfur Diesel

- Reduced exhaust emissions
- Improved cold startability and reduced white smoke at cold startup

Disadvantages of Ultra Low Sulfur Diesel

- Higher cost
 - Lower energy content. Less BTU's per gallon means reduced power and fuel economy
 - Possible premature fuel system wear. The process of removing sulfur can also reduce the natural lubricity of the fuel. There is now a lubricity specification in the D975 standard but it is not as high as what the fuel system manufacturers recommend.
 - Compromised fuel stability. ULSD tends to be less stable and will deteriorate sooner than previous diesel spec.
- Fuel System leaks. Reducing sulfur also reduces aromatics. This can result in rubber seals and hoses in some fuel systems to shrink and result in fuel leaks.

Bio-Diesel

In addition to petroleum, Diesel fuel can also be made from various vegetable oils including Canola and Soybeans. The ASTM also has released a standard, D-6751 for bio-diesel fuels. Stanadyne as well as the other major fuel injection equipment manufacturers have determined that a blend of 5% bio-diesel that meets the ASTM D-6751 standard and 95% mineral diesel that meets the ASTM D-975 standard should not harm fuel system components. This blend is referred to as B5. As with Ultra Low Sulfur Diesel, bio-diesel fuel also has various advantages and disadvantages.

Advantages of bio-diesel

- Reduced exhaust emissions
- Made from renewable resources
- Almost no sulfur (in bio-diesel itself)
- Higher cetane value (51 min vs 40 min for mineral diesel)
- Excellent lubricity

Disadvantages of bio-diesel

- Could harm certain elastomers (seals)
- Has poor resistance to oxidation especially when blended with ULSD. This results in spoilage and the formation of acids and varnishes
- Bio-diesel can absorb much more water than mineral diesel
- Has lower energy content

What can help?

As a major manufacturer of diesel fuel injection equipment for over 50 years, Stanadyne is familiar with fuel related problems such as water in fuel, low lubricity, and the ongoing problem of low cetane values in North American diesel fuels. Fortunately Stanadyne makes a diesel fuel additive that is designed to address these and other issues. Stanadyne Performance Formula all season fuel additive:

Lubricates fuel system components to help prevent wear caused by low lubricity fuels
 Increases cetane value which in turn helps starting, reduces smoke, increases power and fuel economy
 Provides cold weather protection by reducing the fuel pour point by up to 40 degrees F (22 degrees C)
 Helps de-mulsify water so that the water separator can work more efficiently. Stanadyne additives do not contain alcohol which can emulsify water into the fuel where it then comes out of suspension when the engine cools down and corrodes

expensive fuel injection components
Has a stabilizer to keep fuel fresher longer

- Remember Standyne fuel additives are the only ones
- that are made by a diesel fuel injection equipment manufacturer
 - are approved by major diesel engine manufacturers including GM, Ford, VW, John Deere, Navistar, Caterpillar and AM General
 - have been proven to perform the best in independent tests