

In 2006 the Environmental Protection Agency fully mandated that ultra-low sulfur diesel (ULSD) be used in all on-highway diesel vehicles. This fuel burns cleaner and is less polluting than its predecessor, however ULSD has a lower lubricity and cetane rating. Depending on the exact type of fuel used, its cetane rating (combustion quality), the amount of moisture in the fuel, and the age of the fuel among many other factors affect the emission level the engine produces. The question is however, to what extent does this affect the diesel engine that is in so many of today's vehicles? A number of important factors come up when this question is asked.

### **Cetane**

Cetane number or CN is a measurement of the combustion quality of diesel fuel during compression ignition. It is a significant expression of the quality of a diesel fuel. Diesel engines will operate fine on any cetane rating between 40 to 55, but the higher the number, the shorter the ignition delay is, and the more complete and efficient the combustion cycle becomes.

### **Lubricity**

As diesel fuel is further refined to remove the polluting sulfur, it is inadvertently stripped of its lubricating properties. This vital lubrication is a necessary component of the diesel fuel as it prevents wear in the fuel delivery system. Specifically, it lubricates pumps, high pressure pumps and injectors. ULSD fuel is considered to be very "dry" and incapable of lubricating vital fuel delivery components. As a result, these components are at risk of premature and even catastrophic failure when ULSD fuel is introduced to the system. As a result, all oil companies producing ULSD fuel must replace the lost lubricity with some limited additives.

### **Injector Cleanliness**

Fuel can form deposits in the nozzle area of injectors. Excessive deposits can interfere with the spray pattern which, in turn, may hinder the fuel-air mixing process. This can effect fuel economy and increase emissions. Additives can re-dissolve deposits that have already formed and reduce the opportunity for deposits to form in the future.

### **Gelling**

You've probably heard that the biggest problem with running diesels in cold weather is the tendency of the fuel to gel. No. 2 diesel contains some naturally occurring paraffin (wax) and as the temperature drops, this paraffin crystallizes and affects the fluidity of

the fuel and may cause hard starting and eventually lead to filter plugging. This usually happens around +10 degrees F. but can happen at higher or lower temperatures depending on fuel characteristics.

### **Water Separation**

Free moisture (water droplets) in fuel can disrupt and damage the entire fuel distribution system and engine. Free moisture accumulates when a fuel pushed beyond its ability to solubilize more moisture. Moisture can cause rust, corrosion and plugging of fuel lines and filters due to icing in cold temperatures. Opti-Lube fuel additives include a demulsifying chemical that separates the moisture from fuel where it can be collected in the fuel filter or fuel separator to prohibit it from entering the engine.

### **Opti-Lube**

With these factors in mind, Opti-lube addresses all of these issues.

**Opti-Lube XPD** is our most popular product, with the highest level of lubrication and has ingredients to boost cetane and prevent gelling in cold weather.

**Opti-Lube Winter Diesel Fuel Improver** is suggested for extreme cold climates, where temperatures regularly fall below zero. This product also contains a cetane improver and provides excellent lubrication.

**Opti-Lube Summer/Warm Climate Blend** provides excellent lubrication, but does not contain anti-gelling protection or a cetane improver. Because of the low treatment ratio (3000:1), this is our most economical product.

**Optilube Summer+** is similar to our regular Summer Blend with the exception that it also contains a cetane improver.

### **DISTRIBUTED BY:**

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**#1 BRAND DIESEL FUEL IMPROVER\***



**Opti-Lube**  
advanced  
additives & lubricants



# OPTI-LUBE DIESEL FUEL IMPROVER

**opti-lube™**  
XPD

**opti-lube™**  
SUMMER formula

**opti-lube™**  
SUMMER+ formula

**opti-lube™**  
WINTER formula



The lubricity of diesel fuel has been diminished with the advent of Ultra Low Sulfur Diesel Fuel (ULSD) into the marketplace.

**Opti-Lube** products protect your equipment by providing exceptional lubrication in the fuel system (ranked in the top four products in an independent study).

**Opti-Lube Diesel Fuel Improver** helps fuel burn more completely, improving power and fuel economy. Plus, a more complete ignition reduces harmful engine deposits and oil contamination. Clean Injectors are an important part of engine efficiency, which is why we've blended premium fuel injector cleaners into this formula.

Available in quart, gallon, 5 gallon pail, & 55 gallon drum.

**#1 BRAND**  
**DIESEL FUEL**  
**IMPROVER**

\* Rating from independent study conducted by dieselpalace.com

BENEFITS (PRODUCT COMPARISON)	XPD	SUMMER	SUMMER+	WINTER
Boosts Cetane Rating	🟡		🟡	🟡
Reduced Fuel System Wear	🟡	🟡	🟡	🟡
Improved Fuel Economy	🟡	🟡	🟡	🟡
Increased Power	🟡	🟡	🟡	🟡
Reduced Deposits	🟡	🟡	🟡	🟡
Reduced Emissions	🟡	🟡	🟡	🟡
Rust & Corrosion Protection	🟡	🟡	🟡	🟡
Cleans Injectors	🟡	🟡	🟡	🟡
Improved Fuel Storage Stability	🟡	🟡	🟡	🟡
Improved Water Separation	🟡	🟡	🟡	🟡
Compatible with LSD & ULSD	🟡	🟡	🟡	🟡
Stops Fuel Waxing & Gelling	🟡			🟡
Improved Cold Weather Starts	🟡			🟡
Faster Engine Warm-Ups	🟡			🟡
Eliminates Need of #1 Diesel				🟡

TEST RESULTS		XPD	SUMMER	SUMMER+	WINTER
Cummins L10 Injector Cleanliness Test	Deposit Reduction	30%	30%	data soon	30%
ASTM D- 5001 Wear Test	Wear Reduction	42%	35%	data soon	35%
ASTM D- 2274 Stability Test	Improvement	75%	78%	data soon	78%
Fuel Economy Test	Improvement	5%+	3.2%-6.55%	data soon	5.7%-6.55%
Emissions Test (HC)	Reduction	15%	16.67%	data soon	16.67%
Emissions Test (CO)	Reduction	18%	19.76%	data soon	19.76%