



TECHNICAL DATA

102 Barton Street, St. Louis, Missouri 63104

In-State (314) 865-4100/Out of State 800-325-9962/Fax (314) 865-4107 <http://www.schaefferoil.com>

137CTPW CARBON TREAT™ PREMIUM WINTER

Application:

Carbon Treat™ Premium Winter is a multifunctional, ultra-low sulfur compliant diesel fuel additive formulated to prevent and control the formation of asphaltenes and other unstable compounds. These compounds, caused by the extreme pressures and temperatures encountered in high pressure common rail fuel injection systems, can lead to the formation of deposits which plug fuel filters and foul injectors. Carbon Treat™ Premium Winter has 3X the detergency needed to provide clean-up and keep clean performance, as shown by the Peugeot DW-10 Injector Depositing Test.

Although Carbon Treat™ Premium Winter is developed for new model vehicles it can be used in any diesel powered vehicle and in all types of diesel fuel including low sulfur diesel fuel and biodiesel blends.

Features and Benefits:

Carbon Treat™ Premium Winter contains a highly concentrated multi-functional additive package, which provides the following performance benefits when used at the recommended treatment ratio:

1. **Provides cold temperature protection against fuel gelling, waxing, and fuel line freeze-up**
2. **Improves fuel efficiency**
3. **Restores, improves and maintains horsepower**
4. **3X the detergency needed for Clean-up & Keep clean performance proven in the Peugeot DW-10 Injector Depositing Test**
5. **Improvement of the fuel's cetane rating up to two points.**
6. **Excellent anti-wear protection for injectors and fuel pumps; supplemental ring and valve-train anti-wear protection; and lubrication of the upper cylinders.**
7. **Inhibition of oxidation during storage for extended storage stability.**
8. **Rust and corrosion protection to the entire fuel system.**

Coupled with this multifunctional additive package is a non-alcohol jet fuel deicer/water dispersant which eliminates the problems associated with entrained and/or dissolved water present in the fuel by dispersing the water into tiny droplets. These tiny droplets are suspended in the fuel so they can be carried with the fuel in controlled amounts through the fuel filters, fuel lines, and into the combustion chamber to be burned with the fuel. Because the remaining water is dispersed and suspended in the fuel, Carbon Treat™ Premium Winter prevents the formation of stable fuel-water emulsions.

Improved Low Temperature Operability:

Changes in the refining process of middle distillates to make ultra low sulfur diesel fuel have resulted in chemical changes that can significantly impact the fuel's low temperature operability. These chemical changes cause an increase in the amount of total wax (n-paraffins) and wax-to-wax ratios present in the fuel. These wax particles become more concentrated and harder to disperse. As the temperature of the ultra low sulfur diesel fuel drops, the concentrated wax molecules can begin to rapidly precipitate out of the fuel and form large flat or irregular crystals that can quickly plug fuel lines and filters.

Carbon Treat™ Premium Winter contains a proprietary wax crystal modifier, cold flow improver; heavy wax modifier polymeric type additive system that when added to the diesel fuel before the fuel has reached its cloud point helps to prevent the formation of wax crystals. This proprietary polymeric additive system modifies the individual wax crystals by encapsulating and dispersing them as they are formed. This not only drastically reduces the size of the wax crystals by preventing the growth of larger wax crystals through adhesion to each other; but, also allows the wax crystals to flow through the fuel filters and lines and into the combustion chamber with the fuel.

Carbon Treat™ Premium Winter can significantly improve the gelling point and low temperature operability of the fuel. **Improvement in low temperature operability is dependent upon the refining process used to make the ultra low sulfur diesel fuel and its response to the additive.**

Prevention of Settling of Wax Crystals at Low Temperatures

The wax crystals forming in a fuel normally have a slightly higher density than the liquid fuel portion resulting in these wax crystals settling at the bottom of the vehicle fuel tanks and the fuel storage tanks.

Carbon Treat™ Premium Winter contains a proprietary wax anti-settling agent (WASA) that is designed to prevent the paraffins and other waxy components, which can plug and clog filters and other fuel system components, from dropping out of the fuel and settling out over extended periods of time. This increases the diesel fuel's cold weather operability which reduces downtime and maintenance costs.

Increased Lubricity Protection with Synshield™

Today's diesel powered vehicles feature low emission engines that are more susceptible than ever to diesel fuel related wear. Diesel engine designs are employing the use of higher fuel injection pressures, hotter fuel return temperatures, higher operating temperatures and complex engine geometry to control emissions. All of these factors result in increased fuel system wear and decreased engine life.

Carbon Treat™ Premium Winter is blended with Schaeffer's proprietary lubricity additive, Synshield™ to protect today's diesel engines from fuel system related wear. Synshield™ surpasses industry standards for diesel fuel lubricity; and is the only lubricity additive that does not contain sulfur or sulfur containing compounds to exceed the EPA's new standard. Synshield™ prevents fuel system wear and injector scoring by forming a protective layer on the metal surfaces of the fuel system and injectors and provide boundary lubrication between metallic parts in critical fuel system components. This protective boundary lubrication film not only reduces friction and wear between the fuel system surfaces that are in relative motion but also increases fuel system component life, thus leading to less downtime and longer equipment life.

Bulk Treatment Ratio:

One gallon of Carbon Treat™ Premium Winter to 750 gallons of diesel fuel
 0.5 gallons Carbon Treat™ Premium Winter to 375 gallons of diesel fuel
 17 fluid ounces Carbon Treat™ Premium Winter to 100 gallons of diesel fuel

Blend this additive with the fuel at temperatures at least 10°F above the cloud point of the fuel.

Storage Requirements: It is recommended that this product be stored above -10°F.

Carbon Treat™ Premium Winter is registered for use and meets the US EPA requirements for blending into low sulfur and ultra low sulfur diesel fuels. When used at the recommended treatment ratio, Carbon Treat™ Premium Winter will not have any measurable effect on the cetane index or aromatic and sulfur content of the diesel fuel.

THIS DIESEL FUEL ADDITIVE CONTAINS LESS THAN 15PPM OF SULFUR AND COMPLIES WITH THE FEDERAL LOW SULFUR CONTENT REQUIREMENTS FOR USE IN DIESEL MOTOR VEHICLES AND NON-ROAD ENGINES.

THIS DIESEL FUEL ADDITIVE IS COMPATIBLE AND APPROVED FOR USE WITH DIESEL FUELS THAT MEET ASTM D975 AND BIODIESEL THAT MEETS ASTM D6751 AND BIODIESEL THAT MEETS EN 14214

TYPICAL PROPERTIES

Specific Gravity	0.932
Flash Point °F/°C PMCC (ASTM D-93)	144°/62°
Pour Point °F/°C (ASTM D-97)	-26°/-32°
Ash Content %wt. (ASTM D-482)	0
Copper Strip Corrosion Test (ASTM D-130)	1a
Sulfur Content ASTM D-7039	<15 ppm