
#300PTW ARCTIC SHIELD CONCENTRATE

Arctic Shield Concentrate is a highly concentrated, ashless, ultra low sulfur compliant diesel fuel additive that is specifically formulated to provide maximum cold temperature protection against fuel gelling and waxing. Arctic Shield Concentrate can also be used in all types of diesel fuel including low sulfur diesel fuel and biodiesel blends.

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.

Arctic Shield Concentrate 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 encapsulates and disperses the individual wax crystals to drastically reduce the size of the wax crystals which allows them to flow through the fuel filters and lines and into the combustion chamber with the fuel.

Arctic Shield Concentrate 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. Arctic Shield Concentrate 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.

Coupled with the WASA is a non-alcohol jet fuel deicer/water dispersant, HydroShield, 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, Arctic Shield Concentrate prevents the formation of stable fuel-water emulsions.

HydroShield is moisture removal additive technology that contains twice the industry standard for moisture elimination. This technology combined with Schaeffer's Patented WASA (a superior wax anti-settling agent) exceeds industry standards for subfreezing protection. Schaeffer's additive technology helps eliminate potential icing and waxing issues.

Continued on next page

Bulk treatment ratio

One gallon of Arctic Shield Concentrate to 3,000 gallons of diesel fuel.

For hard to treat or unresponsive ultra low sulfur diesel fuel, use one gallon of Arctic Shield Concentrate to 1,500 gallons of diesel fuel.

Arctic Shield Concentrate 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, Arctic Shield Concentrate will not have any measurable effect on the cetane index or aromatic and sulfur content of the diesel fuel.

Storage requirements

It is recommended that this product be stored above 0°F

THIS DIESEL FUEL ADDITIVE CONTAIN 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	.9002- .9122
Flash Point °F/°C PMCC (ASTM D-93)	122°/50°
Pour Point °F/°C (ASTM D-97)	<-40°/ <-40°
Ash Content %wt. (ASTM D-482)	0
Copper Strip Corrosion Test (ASTM D-130)	1a
Sulfur Content ASTM D-7039	<15 ppm