



TECHNICAL DATA

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#300ND ARCTIC FLOW-PLUS+

Arctic Flow Plus+ No Dye is a concentrated multifunctional ashless diesel fuel treatment that eliminates the major problems associated with diesel fuel during winter use: moisture and gelling in all types of diesel fuel, especially low sulfur and ultra low sulfur diesel fuels.

Arctic Flow Plus+ No Dye eliminates the problems associated with dissolved moisture present in the fuel by dispersing the moisture into tiny droplets. These tiny droplets are suspended in the fuel so they can be carried with the fuel through the fuel filters, fuel lines, and into the combustion chamber to be burned with the fuel. By having the remaining moisture dispersed and suspended in the fuel, Arctic Flow Plus+ No Dye eliminates the formation of ice crystals that can block fuel lines and plug fuel filters.

Arctic Flow Plus+ No Dye, when added to the diesel fuel before the fuel has reached its cloud point, prevents the formation of wax crystals. Arctic Flow Plus+ 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. The 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, but also prevents the growth of larger wax crystals and their adhesion to each other. This in turn allows the wax crystals to flow through the fuel filters and lines and into the combustion chamber with the fuel. **By the addition of Arctic Flow Plus+ No Dye to the diesel fuel before it has reached its cloud point, the gelling point of the diesel fuel will be lowered an average of 10°F to 25°F below the original gelling point of the untreated diesel fuel.** Also the addition of Arctic Flow Plus+ No Dye to the diesel fuel can eliminate or reduce the amount of No. 1 diesel fuel that is blended into the No. 2 diesel fuel during extremely cold weather.

Arctic Flow Plus+ No Dye also contains a special additive package that allows Arctic Flow Plus+ No Dye to provide the following performance benefits.

1. Detergency to provide cleanliness to fuel pump and injectors.
2. Dispersion of insoluble gums that may occur from the blending of fuels or from the presence of unstable fuel components.
3. Stabilization of the diesel fuel against oxidation during storage.
4. Excellent anti-wear protection for injectors and fuel pumps, especially for those engines burning low sulfur diesel fuel and ultra low sulfur fuel.
5. Supplemental ring and valve-train anti-wear protection.
6. Lubrication of the upper cylinders, fuel pumps and injectors.
7. Rust and corrosion protection of the complete fuel system.
8. Improves combustion by vaporizing the fuel into smaller particles, thus allowing for more power per gallon of fuel.
9. Helps control the acidic by-products produced by the combustion of the fuel.
10. Inhibition of oxidation of the fuel during storage.
11. Dispersion of water in diesel fuel in order to prevent fuel icing and other problems associated with water.

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12. Prevention of the formation of stable fuel-water emulsions.
13. Reduced emissions, exhaust smoke and particulates
14. Extended storage stability

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 can shorten engine life.

With the mandate by the United States EPA to reduce the sulfur content of diesel fuels to control emissions, this has resulted the elimination of certain naturally occurring polar compounds that aid in protection of the fuel system from wear by forming a protective layer on the metal surfaces of the fuel injection system. The increased use of the hydrotreating and hydrocracking refining processes to reduce the sulfur content of the diesel fuel in order to meet the mandated sulfur content of 500 ppm and the 2006 ultra-low sulfur diesel fuel specification of 15 ppm maximum causes these naturally occurring polar compounds to become either chemically altered or completely removed, thus resulting in increased engine and fuel system wear.

To protect today's diesel engines from fuel system related wear Schaeffer Mfg has further blended into the Arctic Flow Plus+ No Dye a proprietary lubricity additive called Synshield™. Synshield™ is one of the few lubricity additives that not only surpasses industry standards for diesel fuel lubricity but also exceeds the EPA's new standard by being the only lubricity additive that does not contain sulfur or sulfur containing compounds. Synshield™ prevents fuel system wear and injector scoring by forming a protective layer on the metal surfaces of the fuel system and injectors that provides 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 increased longer equipment life

TREATMENT LEVEL

One gallon of Arctic Flow Plus+ No Dye to every 2000 gallons of diesel fuel.

When treating Ultra Low Sulfur Diesel Fuels additional treatment may be necessary for improved winter operability. Treatment ratios may need to be doubled or tripled.

Arctic Flow Plus+ No Dye is registered and meets US EPA requirements for blending into low sulfur and ultra low sulfur diesel fuels. When used at the recommended treatment ratios, Arctic Flow Plus+ No Dye will not have any measurable effect on the cetane index or aromatic content and sulfur content of the fuel.

THIS DIESEL FUEL ADDITIVE CONTAINS LESS THAN 15 PPM 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 60°F	0.9212
Flash Point °F/°C PMCC (ASTM D-93)	113°/45°
Pour Point °F/°C (ASTM D-97)	-20°/-29°
Ash Content % wt. (ASTM D-482)	0%
Copper Strip Corrosion Test (ASTM D-130)	1a

Packaging: 300 Arctic Flow Plus+ No Dye is available in 55 gallon, and 30 gallon drums, 5 gallon pails and cases (4 gallon/case).