

The Facts



Arctic Shield Ultra Low Sulfur Winterized Diesel Treatment is specially formulated for ultra low sulfur winter fuel with extra anti-gel and de-icing agents to prevent filter plugging. Arctic Shield raises fuel to quality levels exceeding manufacturers' specifications, burns completely ashless and contains no metallics or agents found harmful in engines.

Protection Against Moisture Contamination

Arctic Shield Ultra Low Sulfur Concentrate **contains a non-alcohol jet fuel deicer/water dispersant**. This non-alcohol jet fuel deicer/water dispersant 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. By having any remaining water dispersed and suspended in the fuel, Arctic Shield Ultra Low Sulfur Concentrate eliminates the formation of ice crystals that can block fuel lines and plug fuel filters and prevents the formation of stable fuel-water emulsions.



Ultra Low Sulfur Diesel Fuel Changes

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 low temperature operability of the Ultra Low Sulfur Diesel Fuel. **These chemical changes have resulted in an increase in the amount of total wax (n-paraffins) and wax-to-wax ratios present in the fuel.** This results in the wax particles in Ultra Low Sulfur Diesel Fuel being more concentrated and harder to disperse. As the temperature of the Ultra Low Sulfur Diesel Fuel drops these increased amounts of wax molecules can begin to rapidly precipitate out of the fuel and form either large flat crystals or irregular crystals that can quickly plug fuel lines and filters.

Arctic Shield Ultra Low Sulfur Winter 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. 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 Shield Ultra Low Sulfur Winter Concentrate, the gelling point and low temperature operability of the fuel can be significantly improved. This improvement in low temperature operability is dependent upon the refining method or process used to make the Ultra Low Sulfur Diesel Fuel and the response of the Ultra Low Sulfur Diesel Fuel to the additive.

