PREMIUM SELECT FUEL ADDITIVES

PRIMROSE SINCE 1916

Technical Data Sheet

409S Flow-Master ®

Winter Diesel Fuel Treatment

DESCRIPTION:

Flow-Master allows diesel engine operation with No. 2 diesel fuel in sub-zero weather without the problems caused by fuel gelling.

Flow-Master treats No. 2 diesel very economically for excellent cold weather performance with additional benefits for year-round use. Flow-Master is lower in treatment cost and more effective performance-wise than kerosene and No. 1 blended fuels.

COMPOSITION:

The biggest drawback to No. 2 diesel fuel is that when temperatures drop, the fuel will gel, making operation of the equipment impossible. Clouding will occur at even higher temperatures, leading to fuel filter plugging by wax crystals which form.

Kerosene or some other low pour stock requires approximately 30-50% treatment, compared with Flow-Master which requires a treatment of only 0.1% and lowers the pour point drastically through a unique chemical action which is completely unrelated to the pour point of the product itself.

The reason fuel gels is because at low temperatures the wax (which is in the fuel to lubricate) forms tiny microscopic crystals. If untreated, these crystals will immediately begin to combine with one another to form a gel and eventually solidify. The unique chemical action of Flow-Master coats these crystals and retards their formation, maintaining the fuel's ability to flow at very low temperatures. In addition, it alters the shape of the wax crystals which form at the cloud point to enable them to pass through filters without clogging.

Flow-Master offers two new mechanisms not contained in conventional flow improvers: 1) a Nucleator creates more nuclei on which wax crystals can grow, resulting in more, but much smaller crystals, and 2) a Crystal Growth Arrestor greatly limits the ability of the wax crystal to grow larger. In addition, the micro crystals are kept in suspension and not allowed to settle into heavier wax concentrations in tank bottoms.

Flow-Master also contains a moisture displacing agent which disperses moisture from condensation to help prevent icing. It contains no alcohol. Flow-Master contains a special polar lubricity additive to prevent wear in fuel pumps and injectors without the addition of waxy supplements which can plug filters or increase the viscosity of the fuel, further decreasing cold temperature fluidity. This describes Flow-Master's ability to improve handling properties and the ability of fuel to flow. Just as importantly, it also contains a cetane improver which actually improves the ignition quality of the fuel when it gets to the combustion chamber. The cetane number, in responsive fuels, can increase three to four numbers.

PERFORMANCE CHARACTERISTICS:

A well known fact recognized by nearly all diesel equipment manufacturers is that No. 2 diesel fuel is more suitable than No. 1 diesel fuel for heavy loads and constant speed. No. 2 diesel fuel provides better performance and gives better fuel economy because it has 3000 BTU more energy output per gallon. Diesel fuel must have a higher viscosity than gasoline, because diesel engines depend on fuel to lubricate the pumps and injectors. Also, viscosity affects pump and injector leakage and the injector spray pattern into the cylinder. No. 2 diesel fuel is much more satisfactory in these respects. It is for this reason that we recommend the use of No. 2 diesel fuel treated with Flow-Master in order to provide superior performance and longer equipment life.

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409S Flow-Master® Winter Diesel Fuel Treatment

Due to the poorer quality of fuels available on the market today, Flow-Master contains a cetane-improver. The improvement of ignition quality resulting in fuel treated with this product is especially noticed under cold weather starting conditions. The higher cetane rating gives quicker ignition, smoother warm-up by reducing misfiring caused by lower air intake temperatures. It assures smoother combustion during both high and low load operation.

USES:

Flow-Master is formulated to blend very easily with diesel fuel and can also be used in heating oil. It will lower the pour point of any untreated fuel a minimum of 20° to 30°F. The economy of it is that very little will go a long way. One gallon of Flow-Master treats 1,000 gallons of diesel fuel. Use of Flow-Master is not only economical as far as treatment cost, but it eliminates the buying and storing of other types of fuels in large quantities.

Flow-Master contains no dye whatsoever. This product is designed for jobbers to blend premium diesel by treating fuels which are not allowed to contain any dye for on-road requirements. It can also be used in off-road fuels which already contain dye when purchased.

The sulfur content of this diesel fuel additive does not exceed 15 ppm. This diesel fuel additive complies with the federal low sulfur content requirements for use in diesel motor vehicles and nonroad engines.

TYPICAL SPECIFICATIONS:

Appearance	Pale
Viscosity, SUS @ 100°F.	32
Pour Point, °F.	-50
Flash Point, °F.	165
Density (#/gal)	7 – 7.5
Copper Strip Corrosion Test	Pass - Class 1
Ash Content	None

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