

Cold Weather Solutions

DIESEL AT COLD TEMPERATURES

Cold Temperatures Effect on Diesel

Winter weather brings extreme cold, ice, snow, and a new set of operating concerns for diesel engines. In cold weather, fuel systems can gel, creating significant issues and challenges.

DAVCO's heated fuel water separators can help reduce these maintenance concerns. DAVCO units use coolant or diesel fuel for in-operation aid and electric heaters for pre-start or overnight use. These solutions, customized to meet your fleet's needs, are designed to prevent fuel gelling and keep your fleet moving in the most extreme conditions.

Don't wait until temperatures drop—visit www.davco.com for heater recommendations based on the make of your model and DAVCO unit installed.

In the meantime, here are some ways that cold temperatures can affect diesel and how you can combat them.



Additives and Fuel Quality

Additives or “flow improvers” change the shape of the wax crystals, allowing wax to pass through the filter more easily. However, it is possible to “over-dose” fuel with additives. This can lead to unexpected effects, such as corrosion. The better alternative is to warm the fuel before it enters the lift pump with DAVCO's 12VDC pre-heater or 120VAC overnight heater. In addition, incorrect mixing of additives can cause the water in the fuel to look like fuel, making it difficult to know when the water needs to be drained.



Gelling

Gelling is the process where the state of the fuel becomes thick and cloudy, either from the presence of paraffin (wax) or frozen water suspended in the fuel. When fuel is gelled, it can't flow to the engine. To liquify the fuel, the best solution is to add heat at the fuel filter, not chemicals to the tank. DAVCO has a variety of fuel heating options for all Diesel Pro® and Fuel Pro® models.



Restriction

If water freezes in fuel lines, filters become plugged with wax or gelled fuel. This will result in low power from the increased fuel restriction. Regular use of effective fuel heating systems during cold months can prevent down time and costly tow bills. Eliminate time consuming engine and fuel system troubleshooting activities by delivering temperature-controlled fuel to the engine.



Suspended Water

Water suspended in the fuel will exhibit a hazy appearance. If the fuel appears hazy after heating, drain the water. Suspended water thickens fuel by making it “slushy” and it is also detrimental to the performance and life of the injectors and fuel module system. The clear cover provides the ability to view the condition of the fuel before it flows to the engine.



A Clariance Technologies Company

DAVCO Technology, LLC

1600 Woodland Drive, Saline, MI 48176-1629

800-328-2611

customerservice@davco.com

www.davco.com

Diesel at Cold Temperatures



Condensation

As the ambient air temperature drops, the ability for water to condense in the fuel tank increases. Condensation can be carried into the DAVCO unit. As a result, it is recommended that water be drained from the DAVCO unit weekly. During periods of extreme cold it may be necessary to drain the unit even more frequently. If condensation is a problem in fuel storage tanks, the best solution is to use a Shop Pro® to remove the water before it is pumped to the vehicle or equipment fuel tank.



Filter Micron Rating

Fuel filters are the only protection the engine has against contaminants in the fuel. Ensure the correct fuel filter is installed in the DAVCO unit. A larger micron fuel filter should never be used for the purpose of extending filter life or increasing flow. Such action may void the engine warranty and can be damaging to the fuel injection system. The EleMax filter design with StrataPore™ Media manufactured by Cummins Filtration provides the best protection – period. Refer to the Filter Options page on this website for the recommended filter for your application or download form F3105, Recommended Filter Guide.



Tanks and Lines

Some vehicles or equipment come with drains in the fuel tank to allow for the draining of any collected water or contaminants. If the fuel tank is equipped with a drain, use the drain to remove any collected water in the bottom of the tank. If there are no drain ports in the fuel tank, it will be necessary to remove any collected water by another means. A DAVCO Shop Pro® is the recommended shop tool for such a procedure. Ensure that no loops and water traps have developed in the fuel lines from the fuel tank to engine. A loop or low spot in hoses can collect water and could freeze and restrict fuel flow. When possible, keep the fuel in the tanks above the half full level to minimize the potential for formation of condensation.



Wax

When fuel is cooled below the temperature at which wax forms crystals (cloud point), the wax deposit can block filters, reducing or completely stopping fuel flow to the engine. The wax can form as a result of using the wrong fuel for the season or region. Wax takes the appearance of a yellow suspension in the fuel. If wax blocks the fuel filter, warm the fuel. Once the fuel is warmed, it will rise above the pour point, at which the fuel can flow without causing restriction.



Battery Power

A battery load test is recommended to ensure there is sufficient power for cold ambient starts. It is recommended to plug in a 120VAC DAVCO fuel heater while the engine is still warm as opposed to attempting to heat a cold engine. If your DAVCO Fuel Processor has the optional 12VDC pre-heater, turn the ignition key to the “on” position. The DAVCO clear cover provides a clear visual of the fuel condition. The fuel should be in a liquid form when it is heated above the cloud point with the optional DAVCO pre-heater feature.