

June 2009

**DIESEL FUEL: MORE CHANGE IS COMING
FUEL MANAGEMENT PROGRAM**

Ultra-low sulfur phase-in continues. When the Federal Government mandated the introduction of low sulfur diesel fuels into the marketplace, significant changes occurred in the refining process. The current phase-in of ultra-low sulfur diesel has caused refiners and fleet operators to scramble yet again.

Refining changes mean FUEL IS CHANGING. The continuing use of heavier and heavier crude stocks, as revealed in higher end points, gives us the insight into the reason for today's diesel operating problems. The fact that crude stocks now require such high temperatures to refine means that today's diesel fuels contain many elements not found in yesterday's fuels. These elements include wax-like materials that are not paraffin and do not burn well.

There are more heavy metals. Also found in today's fuels are heavier concentration of metals, such as copper and manganese, which speed oxidation and reduce the stability of fuels in storage. Different metals in fuels can also make the fuels incompatible with each other.

Fuel changes add up to a perfect storm. Ultra-low sulfur diesel fuel has now compounded the problem. The general result is a significant reduction in fuel lubricity and reduced injector spray patterns, resulting in poor performance. Cold drivability problems, combustion noise, exhaust smoke, pump failure, higher emissions and reduced efficiency are typical of the performance problems associated with today's commercial-grade diesel fuels.

Preventative maintenance is more important now than ever. Our preventative maintenance programs for diesel fuel include the use of BG Diesel Fuel Conditioner with Anti Gel. Below are the components of this multi functional additive system:

1. **Lubrication agents** replace lost lubricity due to ultra-low diesel fuel. This keeps injectors and fuel pumps in peak condition by reducing wear.
2. **Combustion modifiers** help fuel burn more completely, which helps improve power output and performance.
3. **Oxidation inhibitors** are used to slow the natural degradation of diesel fuel caused by exposure to atmospheric oxygen. The oxidation process is slowed dramatically by the agents in BG Diesel Fuel Conditioner and ordinary fuels can be stored for prolonged periods when treated.
4. **Detergents** work in the fuel system to clean up any varnish or gum in the fuel system, including tanks, lines, pumps or injectors.
5. **Dispersants** help keep insoluble materials in fuel from agglomerating and plugging filters.
6. **Water displacers** repel water from any metal components. This prevents water from attacking and corroding the fuel pump, injectors, tank and fuel system.
7. **Corrosion inhibitors** stop the effects of acids and oxidation materials on fuel system components. This includes metal storage tanks.
8. **Pour point depressants** lower the temperature at which fuel gelling occurs, thus improving the cold filter plug point. This important winter additive improves the cold flow characteristics of fuel by reducing the size of wax crystals and by modifying their shape to help eliminate filter plugging. BG's winter products also include a wax dispersant to further reduce filter plugging.
9. **Metal deactivators** perform an important function in that they help eliminate one of the catalysts for the oxidation process.
10. **Biocides** are blended (when necessary) to kill microbial growth, which contaminates fuel and clogs filters. (This is done for a nominal, one time additional cost).



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FUEL MANAGEMENT PROGRAM

A successful Fuel Management program includes both a testing and education process and product -- not just product. The O'Halloran International and Beller Distributing program is comprehensive - including expertise, continuous testing, proven product and education.

Program Includes:

Testing

- Lab test tanks for water AT MINIMUM once per quarter. (Continual reappearance of water may require further recommendations.)
- Lab test tanks for microbial growth AT MINIMUM once per quarter.
- Lab test diesel fuel cloud point and pour point once per month to assure winter performance diesel fuel (when seasonably applicable).
- On-site field testing of specific gravity, API index, CFPP and water testing performed monthly...GUARANTEED.

Product

- Maintain exact oxidation stability of the fuel
 - BG Diesel Fuel Conditioner P#230, Oct-Mar
 - BG Summer Conditioner P#227, Apr-Sept.

Education

- Seminars on current fuel trends, regulatory and legislative environment.

Benefits of Fuel Management Program

Program requires both regular testing and use of two BG products (Diesel Fuel Conditioner P#230 and Diesel Fuel Conditioner P#227)

- Guaranteed kill of microbial growth, which contaminates fuel and clogs filters. (This is done for a nominal, one time additional cost.)
- Corrosion inhibitors to protect tank, lines, pumps and injectors.
- Storage stability of fuel.
- Combustion deposit control to extend service life of fleet and maximize fuel economy.
- Decreased fuel-related down time.
- Increased fuel economy due to a clean fuel system in each vehicle.
- Lower pour point on diesel fuel to ensure that the fleet continues to operate in sub-freezing weather to meet -20 fuel initiative.
- Oxidation stabilization of fuel to prevent fuel injection deposits and intake valve deposits and prevent re-occurrence of microbial growth.
- Lubrication agents to replace lost lubricity due to ultra-low diesel fuel.
- PROACTIVE FUEL MAINTENANCE VS. reactive fuel maintenance.



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