

## Fuel Quality Update

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EnviroFuels is reporting on current fuel quality issues that have negatively impacted operations of our customers, potential customers, and industry contacts. Periodically, EnviroFuels will send out updates regarding fuel quality issues from the field to inform end users of potential problems that may be experienced.

### Fuel Quality Update

Within the last several months, several of EnviroFuels' clients and non-customers have reported increased fuel filter plugging and fuel injector failures. These reports have come from clients in various industries, including rail and marine/offshore construction. These recent cases of poor fuel quality involve either bacteria or asphaltenes in diesel fuel. Both microbial growth and asphaltenes may present themselves in fuel as a black, fibrous substance. Customers that we spoke with saw black algae-like substances in fuel filters, purifier bowls, and in fuel samples from storage tanks.

Bacterial growth is caused generally from the presence of water in fuel or occurs naturally from microbes that feed off of fuel and oil. Asphaltenes are present usually in fuel at low concentrations as a result of the refining process. These asphaltenes can often agglomerate during fuel recirculation and when exposed to heat and pressures in fuel systems. Unstable fuel with lower sulfur content can contribute to asphaltene formation. Larger clusters of asphaltenes may clog filters and are very difficult to completely combust.

### Addressing the Issue

Treating fuel storage tanks with a biocide can reduce the negative impacts of bacterial growth in fuel. Asphaltenes, on the other hand, are more problematic to address. Checking fuel purifiers regularly, shortening the fuel filter change interval, and monitoring fuel quality are methods of ensuring best performance of equipment.

### Examples from the Field

CASE 1: SHORT LINE RAIL ROAD  
Engine(s): EMD 12-567BC, Caterpillar 3600

Louisiana, August 2007  
Treatment: Treating with DFC

Fuel filter plugging and fuel injector failures were reported prior to treating with DFC. Through fuel sampling, bacterial growth was present in the fuel. The fuel storage tanks were cleaned, shocked with biocide, and treated with DFC. Regular fuel testing shows fuel quality has improved.

CASE 2: OFFSHORE CONSTRUCTION VESSEL  
Engine(s): Detroit Diesel 16V149TA

Gulf of Mexico, December 2007  
Treatment: Treating with DFC & LTP

The vessel reported a higher than normal occurrence of fuel filter clogging. Black, algae-like substance was observed in the fuel filter media before treating with DFC. After fuel sampling, five out of 14 fuel tanks tested positive for bacterial growth. The vessel treated its tanks with biocide and continues to analyze its fuel on a regular basis.

CASE 3: MARINE DIVE SUPPORT VESSEL  
Engine(s): Caterpillar D398 and Detroit Diesel 6-71

Gulf of Mexico, January 2008  
Treatment: Treating with DFC

This vessel lost fuel injectors on its generators due to a combination of water and bacteria in its fuel. The above picture shows a fuel sample from the vessel in Case 3. The picture clearly shows the separation from the water and fuel. Additionally, a black, filmy substance is visible at the top of the water layer. The fuel tested positive for bacterial growth.



*Fuel Sample from Marine Dive Support Vessel*

### EnviroFuels

EnviroFuels, LLC (EnviroFuels), headquartered in Houston, Texas, manufactures and markets patented fuel and lubricant technology to large engine operators in various industries such as the dredging, marine, mining, oil and gas, and rail industries. To request additional information on EnviroFuels or its patented technology or to report fuel quality issues, please email EnviroFuels at [info@envirofuelsllc.com](mailto:info@envirofuelsllc.com) or call toll free 877-402-9600.