PERFORMANCE DIESEL, LLC
CHEMISTRY-DRIVEN PERFORMANCE

251 KING MUIR ROAD
LAKE FOREST, ILLINOIS 60045

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Technical Topic

Tank Maintenance Program

When ULSD was first introduced in 2006, fuel lubricity was not the only problem that surfaced when the sulfur level was reduced to <15ppm. Fleets additionally complained that the fuel did not have the power and fuel economy was reduced by 1%. Sulfur also provided natural Fuel Stability and its reduction resulted in Asphaltene formation that diminished fuel filter life by 50%. High Sulfur fuel also kept fuel tanks dry as the Sulfur held the moisture until it was combusted. Sulfur's benefit of being a natural biocide was also significantly minimized. The result is today's ULSD fuel is an ideal environment for microbial growth.

Contaminated tanks are now everywhere and it's relevant to understand WHY.

ULSD fuel is hydroscopic (it absorbs moisture). Biodiesel can hold up to 10 times the amount of moisture as compared to ULSD. Thus the combination of reduced Fuel Stability and increased Tank Water Bottoms today requires the implementation of a Tank Maintenance Program to control and help prevent the growth of Bacteria and Fungi. If left unchecked, the Bacteria and Fungus will produce slime and organic acids resulting in tank corrosion and plugged fuel filters. This problem will not go away so it is mandatory to implement a routine Tank Maintenance Program.

The best approach is to be proactive and implement a Tank Maintenance Program for all bulk storage tanks, including customers' storage tanks. It is estimated that over 50% of all tanks, when tested using a tank bottom sampling device, test positive for the growth of Bacteria and Fungus.

A very popular method to test in the field or in the lab is the Liqui-Cult Microbial Test Kit made by MCE Chemicals & Equipment. This testing procedure requires the Incubation of the Liqua-Cult for 30 hours for Bacterial Growth and 72 hours for Fungal Growth. We suggest using a marker to identify tank and test start time, day and date on the Liqui-Cult bottle. Once the time specifications are met, a careful comparison is required by comparing the sample bottle to the colored chart to determine the degree of contamination. The cost per kit is about $10.00.

We recommend implementing a Tank Maintenance Program that involves testing all the tanks using a tank bottom sampling device. Due to the number of tanks that need to be tested the best approach is to **assume** microbial growth and do a Shock Treatment on all fuel tanks using a Biocide and a moisture dispersant/tank cleaner. Once all the tanks have been cleaned, twice a year treatment using a Biocide is recommended. The best proactive method is to treat the tanks every 3 months to keep the tank bottoms dry with **Performance Fuel Polisher** treating the diesel at 1/1000 to dehydrate the tanks. Remember, no water, no bacteria.

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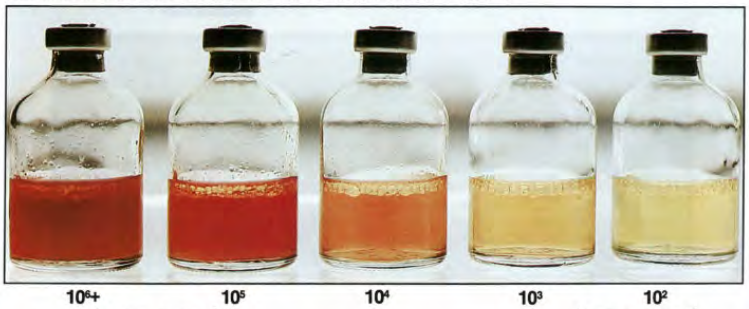
BACTERIAL GROWTH:

This chart is to be used for comparison 30 hours after sample is injected.



FUNGAL GROWTH:

This chart is to be used for comparison 72 hours after sample is injected.

For additional information or questions, please call MCE
Liqui-Cult™ KITS are sold by and ordered through:

Metalworking Chemicals & Equipment Co. Inc.
34 Main St. P.O. Box 990
Lake PLacid, NY 12946
Tel. (518) 523-2355 ● Fax 518 523-2821

Offices in: Chicago, IL ■ Detroit, MI ■ Los Angeles, CA ■ Mandeville, LA ■ Medford, NJ

Procedure

1. Pump out or drain tank bottoms until fuel is clear.
2. Properly dispose of sludge and water
3. Add FQS 1.5 biocide at a rate of 1 gallon per 10,000 along with **Performance Fuel Polisher** at 1/500
4. Fill the tank with fuel to the tanks' operating capacity
5. Wait at least 8 hours
6. Sweep the tank bottoms to remove any settled debris
7. Replace dispenser filter after 24 hours as it will catch any remaining contaminates