



Diesel Microbiological Growth

Marketing Technical Bulletin

2008 saw the widespread introduction of Bio components into diesel fuel to meet the requirements of the British Governments Renewable Transport Fuels Obligation (RTFO). This bio component is composed of Fatty Acid Methyl Esters (FAME) which are primarily derived from plant sources such as Rape Seed Oil. This is blended into diesel fuel at up to 5% with the finished fuel known as B5 within the Oil Industry - and which must meet all of the requirements of the diesel fuel specification, BS EN 590.

Diesel containing Biocomponents are known to have an increased risk of microbiological growth. These consist of bacteria, fungi and yeasts. These grow at the interface between fuel and water and can grow rapidly especially during warmer periods.

These organisms are present everywhere: in the air, the soil, on our hands and at the moment fuel is first produced and cooling they can be found in the fuel. Normally in fuel they are found at low levels, however in the presence of water over extended periods, problematic growth can appear.

For the retailer fungal growth causes the most problems as this is most likely to produce mats of material that can block tank strainers and vehicle filters although some bacteria can also be problematic. Pump strainers tend to block long before any problems are experienced by customer vehicles. We recommend pump strainers should be 20/25 micron max.

The good news is that as a general rule growth can be prevented relatively easily by making sure that housekeeping is maintained. Key to this is ensuring that any water present is removed periodically hence ATGs should be monitored or tanks dipped on a regular basis.

A slowdown in pump rates or blocking of nozzle end strainers is generally the first indication of problem growth. We recommend that at this point you should check water levels in the affected tank and also look at the pump end strainer. Generally microbiological growth (MBG) will look black and slimy. If MBG is suspected then this can be verified by testing which takes five days to incubate the growth..

When testing samples should preferably be taken from the tank bottoms and any fuel/water interface. If this is not possible then a nozzle sample should be taken into a clean dry container.

If MBG is confirmed as is the presence of water then pump out the bottom of the tank to remove water and the bulk of the growth. If the problem persists then tanks with serious infections should be cleaned thoroughly to remove all of the infestation.

A biocide may then be used on a one off basis to remove any remaining organisms. This will help avoid reoccurrence of the problem as long as housekeeping is maintained. Biocide should only be used once any water and sludge have been removed from the tank. If serious infections are treated with biocide without their prior removal by pumping or tank cleaning then the dead material can lead to filter blocking over a prolonged period as it works its way out of the system.

We do not recommend the use of biocides on a sustained basis as the organisms develop a level of immunity which means subsequent problems are difficult to treat.

Most biocides have a high toxicity hence care must be taken in their use and disposal of any treated water bottoms..

Through simple precautions and good housekeeping, problems can be reduced or prevented.

Esso prides itself on the quality of its fuel and all fuel is manufactured to meet National specifications.

Useful contacts

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