



IS THERE SLIME IN YOUR FUEL?

Farm Machinery Fact Sheet FM-15

By *Dr. Von H. Jarrett*, Extension Agricultural Engineer

As it comes from the refinery, diesel fuel is clean, but the more it is handled and transferred from one container to another, the greater the chances that it will become contaminated with water, dirt or other inorganic materials, or with biological agents. Water and foreign matter such as dirt are familiar problems, best handled by the “good housekeeping” procedures known to most fleet operators. Biological contamination, however, often goes unrecognized in its early states. Once established, it is costly to eliminate, but even costlier in terms of plant maintenance if not controlled.

There are numbers of microorganisms able to thrive in diesel fuel, including types of fungi that grow into long strings, forming slimy mats and globules. They need only trace amounts of minerals and water to sustain their growth, and use the diesel fuel itself as their main food supply. Given the right conditions, such organisms can double in number every 20 minutes. As they grow and multiply they chemically alter the fuel to produce water, sludge, acids and other products of metabolism. Where they cling they hold water and waste products against metal and other surfaces, increasing the chances of corrosion. Rubber and other tank linings, hoses and coatings may actually be consumed by them.

Fuel tank gauging systems are favorite places for fungal growth. The adhering slime interferes with the operation of the mechanism, leading to erratic or incorrect readings. The slime is very difficult to filter. Microbial growth in fuel quickly clogs filters, sometimes bursting the filter or cutting off the fuel supply, causing a sudden and complete loss of power. Bits of eroded tank lining and fungal debris sometimes pass filters to clog small feeder lines or delicate injectors. Contaminated fuel leads to smoky, less-efficient burning, and can be a major factor in coking around injector nozzles.

Detecting microbial contamination of a fuel tank can be as easy as noticing a slimy build-up in the filter, or that the fuel has developed a sulfurous “rotten egg” smell. At other times the signs are more subtle, and testing is needed, either at a laboratory or using an on-board test kit, such as the Microb Monitor Test Kit produced by Boron Oil Co. and distributed in B.C. by Paulsen Industries Ltd.

Once the presence of biological contaminants has been established, chemicals that kill the microorganisms must be used to keep them under control.

Water-soluble biocides have a major drawback in that they only protect the tank that has been treated, and reinfestation can easily occur. Also, some can interfere with the working of an

on-board sewage treatment plant if it is common practice for the water that accumulates at the bottom of the fuel tank to be drained into the sanitary system.

Fuel-soluble products, one of the more popular being Biobor JF from U.S. Borax, carry the protection right through the fuel delivery system, from one tank to another, to gauges, filters and feed lines.

Once fuel has been treated with a biocide, there is an initial increase in filter plugging at the tank or dispensing pump as the colonies of microorganisms die. One way to avoid this problem is to have the contaminated fuel pumped from the tank, and the interior of the tank cleaned.

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Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, Robert L. Gilliland, Vice President and Director, Cooperative Extension Service, Utah State University, Logan, Utah. (EP/2-95/DF)