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**IMPACT OF BIODETERIORATION ON DIESEL FUEL SYSTEMS**

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The ongoing development of current injection systems for diesel fuel has increased the requirements for fuel preparation, among other things; for example, in the particle separation level and water separation. To protect the injection system against corrosion, cavitation, reduced lubricity, and the increasing influence of microbiological growth fuel filter modules contain a highly efficient particle and water separation. The introduction and distribution of biofuels, e.g. Biodiesel, intensifies the problem even more.

The present paper summarizes the result of intensive work during the last two years starting with a survey in the automotive industry. Analyzing the feed back from engine supplier, petrol industry, car manufacturer and system supplier systematic lab trials were started to simulate the impact of biodeterioration on diesel fuel systems.

In a first step diesel/water and biodiesel/water systems were set up to investigate the growth of microbes. After having these first results it has been decided to set up a system to simulate the affinity of microbes to fuel systems construction materials.

The test system consists of a glass bin in which several fuel system materials can be introduced and exposed to the microbes. For these tests several materials like steel\_plate, Polypropylene (PP), Polyamide 12 (PA 12), Polyamide 6,6 (PA 6,6), Polyoxymethylene (POM) and filter-paper were used and studied. The microbes in this test were isolated and cultivated from truck pre-filters and *P. putida* und *P. oleovorans* were applied as control.

The affinity of the different microbes to the surface the fuel system construction materials were investigated by using methods like ATP-measurement, PCR, protein concentration and vitality.

To collaborate the laboratory results with field experience pre filters from diesel trucks were analyzed and methods for biodeterioration control applied.