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Pressemitteilung

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Deposits in diesel-injectors - New test shall replace XUD9 and DW10

A newly developed non-engine test bench for diesel fuel with different biofuel content is able to reproduce deposits in diesel injectors under realistic circumstances. The test method, which is used for investigations of the increasingly observed "internal diesel injector deposits" (IDID), shall replace the currently used tests XUD9 and DW10 for the evaluation of additives in No-Harm trials, because they are either expensive or no longer represent the latest technology.

In the test bench, four complete Euro-5 Common-Rail-Systems are driven with the nowadays common high injection pressures without combustion. The construction of four identical test places allows the repeated testing of a single fuel, as well as a parallel screening of several fuels. After the injection in a reactor, the fuel is collected and led back into the reactor. The basic concept using this "Hardware-in-the-Loop" (HiL)-test bench is, that a comparatively low sample volume is conveyed in a loop, while using as many components as possible of the real system ("hardware") to depict the reactions between fuel and components. During the test procedure, the fuel is exposed to loads and degrades, which aggravates the test conditions because of the contact between components and aging products. Due to the elimination of engine combustion, the test method requires only a low sample volume and low demands to the available test infrastructure, which leads to lower costs for the testing. Moreover, the test bench allows a flexible integration of different Common-Rail-Systems.

In a planned follow-up project, the procedure shall be further developed to enable to differentiate between critical and non-critical fuels, as well as a to serve as fast test method for the evaluation of additives. The test procedure has been developed within the research project "ENIAK" by the working group Quality Management Biodiesel (AGQM), the OWI Oel-Waerme-Institute, the ERC Additive GmbH and the ASG Analytics-Service GmbH. The project was funded by the "Specialist Agency Renewable Resources" (FNR) of the Federal Ministry for Food and Agriculture.

URL zur Pressemitteilung: http://www.owi-aachen.de

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Test bench for the investigation of internal deposits in diesel injectors. Foto: OWI Oel-Waerme-Institut GmbH