

## Summary

### **"Effect of diethyl ether in a mixture with rapeseed oil on selected parameters of the diesel engine operation"**

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The main objective of the work was to determine the physicochemical properties of the mixture of diethyl ether (DEE) with rapeseed oil (OR), and to investigate the effect of DEE in mixture with OR on selected parameters of the compression ignition engine (CI).

As part of the study of the doctoral thesis, research was carried out on the course of working processes occurring in the engine powered by DEE-OR mixtures and the impact of the combustion process of the tested fuels on the concentration of harmful exhaust components was determined.

The scope of work related to the development of the dissertation included the preparation of the test stand, determination of basic physicochemical properties of the examined fuels (density, kinematic viscosity, surface tension, calorific value, corrosive effect, low temperature and tribological properties), evaluation of the stability of mixtures using Turbiscan, carrying out test dynamometers on the AVL 5402 test engine and development of engine test results to determine the suitability of DEE as a component of the mixture with OR for powering engines with SR.

The paper also presents the current state of knowledge regarding the use of alternative fuels, in particular those of vegetable origin. On the basis of the conducted tests, it was found usefulness of diethyl ether as a renewable, high-methane biocomponent, significantly improving the physicochemical properties of rapeseed oil as fuel for self-ignition engines, which can also be used at low temperatures.

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