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Abstract of PhD dissertation entitled

Evaluation of ageing of motor fuel on their useful properties.

The issues of fuel quality and its control procedures are controlled by applicable legal regulations, which oblige a. o. to store significant amount of fuel as strategic reserves. Simultaneously, pro-environmental policy necessitates using biocomponents in fuels. Unfortunately, due to their low durability, they became a source of problems with maintaining quality of long-term stored fuel.

The purpose of the paper was to develop new liquid long-term stored fuel quality control system, which would meet the following requirement:

- the method should make remote control of the long-term stored fuel quality possible
- utilised control and measurement equipment should be adjusted to operation in environment at risk of explosion
- the equipment should operate autonomically.

An initial concept of a new system and measurement method was created.

Initial tests were conducted, as a result of which thesis of the paper was determined, that is – it is possible to develop a measurement system that would allow a quicker and safer detection of long-term stored fuel quality in non-laboratory conditions.

In order to confirm the thesis, a measurement system remotely monitoring spectral changes in the fuel during storage was developed, installed and launched. System behaviour in terms of weather resistance was tested. Verification measurements were taken, on the basis of which the correlation between parameters registered by the newly developed system and parameters that degrade most quickly during storage was determined.

The obtained results allowed to fulfil the purposes of the paper and to confirm its thesis.