

Use of an infrared camera in a model combustor for analysis and evaluation of firing technological properties of variable, biogenic fuels



The stock of fossil fuels like mineral oil, natural gasoline and carbon is constantly diminishing. At the same time, their use causes an anthropogenic increased emission of carbon dioxide into the atmosphere. But also the import dependence of mineral oil and natural gasoline as well as the resultant monetary loss in the national value chain require mandatorily the use of regional available fuel resources for energy supply.

The project executing organization EuroNorm GmbH of the Federal Ministry of Economy and Technology in Berlin (Germany) has granted a research project to the ILK Dresden, that includes the development, construction and structural realization of a model combustor with little power (~ 10 kW engine output) for the research of firing technological evaluation of variable, biogenic fuels. The focus is particularly on „other“ biomasses (digestate material, green waste, landscaping residues) that are available on a large scale but which need specific combustion conditions and/or emission decrease measures because of their elemental composition.

For the detection and control of the flame temperature the high-temperature infrared camera of the type PYROVIEW 640N made by DIAS Infrared GmbH has been chosen. This camera enables to measure the flame and furnace temperature in a large range from 600 °C to 2500 °C and to display whose spatial distribution. So it is possible to detect different combustion temperatures of different materials and to specifically control the combustion parameters during operation and to understand the changes immediately.

By means of this measurement technology the downstream emission decrease works can be optimally controlled and adjusted to enable the optimal combustion and to minimize the pollutant emission.

