

The joint research project HTFMetro - precise metrological characterization of thermophysical material data of heat transfer liquids

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Short summary:

In cooperation with the companies aqua-concept Gesellschaft für Wasserbehandlung mbH and Belimo Automation Deutschland GmbH as well as the Physikalisch-Technische Bundesanstalt (Working Group 7.51, Measurement of Thermal Energy), a metrologically validated measurement method for the precise determination of thermophysical material data of real heat transfer fluids will be developed over the next three years. Operational and ageing influences are taken into account. The main project contents are the metrological characterization of important substance data over the relevant temperature range, the evaluation and improvement of existing measurement methods, the development of new approaches for the validation of substance data in operation, the investigation of the influence of ageing on the measured variables, and the provision of valid substance data to support standardization and calibration. The focus is on the development and validation of high-precision measurement and modelling methods for the determination of thermophysical material data (in particular specific heat capacity, density, thermal conductivity, viscosity) of real heat transfer fluids under operating conditions in heating and cooling circuits. The joint research project is funded by the German Federal Ministry for Economic Affairs and Energy as part of the 8th Energy Research Program: The lecture gives an overview of the project content and initial results are presented.