# Measuring and Modelling of Water Dew Points in Hydrogen Enriched Natural Gas

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For gas transport through pipelines and gas applications at industrial sites, it is important to know the relation between water content and dew or frost points of natural gases. So far, the calculation method of both the German and international standards is based on a modified Peng-Robinson equation of state. The data of Oellrich et al. [1], which were used for the adjustment of the parameters of this equation, were very limited with regard to temperature, pressure, and composition ranges. Thus, these ranges will be extended by new experiments. Furthermore, humid hydrogen or hydrogen-enriched natural gas is only sparsely investigated. Since hydrogen is playing an increasingly important role in the planned decarbonization of the gas sector, new experiments will be carried out in order to fill this data gap.

In this paper, both the potential and limitations of the employed measurement methods are presented. Moreover, first experimental measurements are shown and compared to the experimental data of Oellrich et al [1].

## References

1. L. R. Oellrich, GERG- Water Correlation (GERG Technical Monograph TM 14): Relationship Between Water Content and Water Dew Point Keeping in Consideration the Gas Composition in the Field of Natural Gas (VDI Verlag GmbH, Düsseldorf, 2001).