

Calibration of the Vibrating Tube Densimeter and Measurements of Liquid Phase Densities of Dimethyl Ether

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A reliable knowledge of the P- -T behavior of pure compounds and mixtures is of great importance in many fields of research as well as in industrial practice. The densities of fluids as a function of temperature and pressure are particularly important for the design of industrial plants, pipelines, and pumps.

Recent investigations of clean alternative fuels have shown that dimethyl ether(DME) and its mixtures have excellent properties as diesel fuels and have a promising future as a replacement for fuels obtained from fossil reserves.

The aim of this work was to calibrate Anton Paar DMA 512P vibrating tube densimeter by using water and nitrogen as reference fluids and to measure compressed liquid phase densities of DME at temperatures from 313.15K to 353.15K and pressures up to 300bar. The densimeter has been calibrated by using water and nitrogen.