

VISCOSITY OF SQUALANE SATURATED WITH CARBON DIOXIDE MEASURED WITH ACOUSTIC LEVITATION AND CAPILLARY RHEOMETRY

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Abstract

We present viscosity data for pressurised squalane saturated with carbon dioxide. For the measurements, two different methods were applied: A high-shear rate capillary rheometer and an acoustic levitator. The acoustic levitation method is based on the optical investigation of the damped oscillation of a suspended drop using a high speed camera system. The damping constant is directly related to the viscosity of the liquid.

Both apparatuses are designed and self-built for measurements with gas-saturated mixtures under high pressures. Data are measured in a pressure range from 0.1 MPa to 10.1 MPa and a temperature range from 40 °C to 80 °C. Results from both methods are compared with each other and with literature data. With the comparatively fast measurement time, acoustic levitation turns out to be a handy method for quick measurements demanding only small sample volumes.