

## A Reference Correlation for the Viscosity of Ethane

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An update of the reference correlation for the viscosity of ethane [J. Phys. Chem. Ref. Data 44, 043101 (2015)] was developed because recently a new zero-density viscosity correlation based on theoretically calculated values of the dilute gas viscosity became available. The original zero-density contribution was replaced, and the generation of the complete viscosity correlation was repeated using the residual viscosity concept and a state-of-the-art linear optimization algorithm. A contribution for the critical enhancement was again included, so that a total of 18 coefficients resulted for the final formulation. The viscosity in the limit of zero density is now described with an expanded uncertainty of 0.3% (coverage factor  $k = 2$ ) in the temperature range  $250 \leq T/K \leq 700$  and of 1.0% at temperatures  $90 \leq T/K < 250$  and  $700 < T/K \leq 1200$ . The updated complete viscosity correlation is valid in the fluid region from the melting line to 675 K and 100 MPa. The uncertainty of the correlation amounts to 1.5% at temperatures  $290 \leq T/K \leq 430$  and at pressures to 30 MPa based on very reliable data. The uncertainty of the correlated values is increased to 4.0% in the range  $95 \leq T/K \leq 500$  at pressures to 55 MPa, for which further primary data exist. In the region in which no experimental data are available, but the reference equation of state of Bucker and Wagner [J. Phys. Chem. Ref. Data 35, 205 (2006)] is valid, the uncertainty is estimated to be 6.0%. The uncertainty in the near-critical region ( $1.001 < T/T_c < 1.010$  and  $0.8 < \rho/\rho_c < 1.2$ ) rises with decreasing temperature up to 3% when taking into account the available data.