

PVT-Measurement of Ammonia for Determination of Its Critical Point Parameters

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We are measuring PVT properties and vapor pressures of ammonia in the region near its critical point by a variable volumometer metal-bellows with an optical cell. The measurements are carried out at 310, 350 and 400 K and in the temperature range between 404 and 406 K for densities from 200 to 300 kg/m³. The experimental uncertainty in temperature, pressure and density measurements is estimated to be ± 5 mK, $\pm 0.05\%$ and $\pm 0.25\%$, respectively. The purity of the sample used is reported to be better than 99.9%. The sample is purified further by degassing three times by freeze-thaw cycling before loading. The effect of impurities on the measurements will be discussed in detail. The critical parameters, T_c , ρ_c and P_c , will be proposed based on the PVT measurements and visual observations of the meniscus.