

Isochoric Heat Capacity and Curves of Phase Equilibriums of System n-Heptane - Water (Water Content 0.419 Mole Fraction)

Veronika Mirskaya^S, Denis Nazarevich^C and Nabiyulla Ibaov

Daghestan Science Centre of RAS Institute of Physics, Makhachkala, Republic of Daghestan, Russia

In binary systems consisting of polar and nonpolar components, different types of phase equilibrium (liquid - liquid, liquid - vapor, liquid - liquid - vapor, etc.) can be observed. Curves of liquid - vapor and a liquid - liquid phase equilibrium are determined on the basis of results of experimental studies of isochoric heat capacities C_v of the system n-heptane - water [$x\text{H}_2\text{O} + (1-x)\text{C}_7\text{H}_{16}$] with the water content 0.419 mole fraction. The temperature dependence of heat capacity has been studied along isochors in the density range $150.0 - 330.0 \text{ kg/m}^3$ and temperature range $493 - 533 \text{ K}$. The measurements are performed with a known method of a high-temperature adiabatic calorimeter-pezo-metra with an automated observational installation. Features of liquid - vapor and liquid - liquid phase equilibrium curves of the explored systems are found.