

## Isochoric Heat Capacity of the H<sub>2</sub>O - N-C<sub>6</sub>H<sub>14</sub> System in the Concentration Interval 0.615 - 0.935 Mole Fraction of H<sub>2</sub>O

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The isochoric heat capacity of the H<sub>2</sub>O – n-C<sub>6</sub>H<sub>14</sub> system in the concentration interval 0.615 – 0.935 mole fraction of H<sub>2</sub>O is investigated by means of a high temperature adiabatic calorimeter of constant volume. In this interval the isochoric heat capacity along isochors undergoes two step-wise changes caused by the phase transitions from liquid – liquid and liquid – vapor. With increasing temperature along the isochore in the three-phase system water – n-hexane – vapor there occurs a phase transition from liquid – vapor of the hydrocarbon-weak solution at the liquid phase of water. Next here is observed a phase transition from liquid – liquid and the system becomes a solution. The measurements are carried out with vigorous stirring of the system. The phase transition temperatures are determined by heat capacity jumps. The experiments measuring the isochoric heat capacity of H<sub>2</sub>O – n-C<sub>6</sub>H<sub>14</sub> at compositions: 0.615, 0.854, 0.935 mole fraction of H<sub>2</sub>O show that the liquid – vapor coexistence curve for these concentrations is exceedingly similar to the coexistence curve of pure n-hexane. The difference is only that with increasing water concentration the curve peaks shift toward large densities. Analysis of obtained values reveals the results: for composition 0.615 mole fraction of H<sub>2</sub>O  $\beta = 0.383 \pm 0.003$ ,  $B = 2.06 \pm 0.03$ , for composition 0.935 mole fraction of H<sub>2</sub>O  $\beta = 0.379 \pm 0.07$ ,  $B = 1.112 \pm 0.036$ . The exponential quantity of the coexistence curve of liquid – vapor in the three-phase system is consistent with the theoretical value  $\beta = 0.325$  for solutions within the calculation and experimental errors.  $\beta$  for these solutions is higher, which may be connected with the increase of mass exchange in the vapor phase region.