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本刊中 包含“顺丁烯二酸二乙酯”的 相关文章

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顺丁烯二酸二乙酯与正构烷烃二元溶液在临界区的关联长度和渗 透压缩系数

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摘要 测量了顺丁烯二酸二乙酯与正庚烷、正辛烷、正壬烷和正癸烷二元溶液在临界区域不同波长及温度下的浊度。与关联长度、渗透压缩系数、共存曲线相关的三个指前因子(χ~0,ξ~0,B)的比例关系为:R=ξ~0[B^2/(4k~BT~cχ~0)]^1^/^3 (k~B和T~c分别为玻尔兹曼常数与临界温度),R的理论值为0.65-0.67。临界指数γ,ν和β服从指数和规则:3ν=2β+γ。用上述两个关系式及Ornstein-Zernike方程拟合浊度-温度-波长数据,得到γ与ν,在误差范围内与理论值一致。将γ与ν固定在理论值1.241和0.63,得到ξ~0和χ~0,结果表明ξ~0和χ~0可分别由ξ~0Φ~c^0^.^8^5∝M^n和χ~0Φ~c^-^1^.^2^0∝M^g表示 (Φ是顺丁烯二酸二乙酯的临界体积分数,M是正构烷烃的摩尔质量),其中n=0.22±0.03,g=-0.07±0.09 和我们最近提出的理论值0.18和-0.06吻合。

关键词 顺丁烯二酸二乙酯 正构烷烃 临界区 浊度 光散射

分类号 0645

Correlation lengths and osmotic compressibilities of binary solutions for diethyl maleate in n-alkanes in the critical regions

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Abstract A series of turbidity measurements have been made for binary solutes of diethyl maleate in heptane, octane, nonane, and decane in the critical regions at various wavelengths and temperatures. Critical amplitudes ξ~0, χ~0 and B corresponding to the correlation length, osmotic compressibility and coexistence curve are related through R= ξ~0[B^2/(4k~BT~cχ~0)]^1^/^3, where the value of R is 0.65-0.67. The corresponding critical exponents γ, ν and β are related through the sum rules: 3ν=2β+γ. By using these two relations the turbidity data are fitted to the Ornstein-Zernike equation to obtain γ and ν, which are consistent with the theoretical values within experimental uncertainties. The experimental data have also been analyzed to determine critical amplitudes when the value of γ and ν are fixed at their theoretical values 1.241 and 0.63 respectively. The results show that ξ~0 and χ~0 may be expressed by: ξ~0Φ~c^0^.^8^5∝M^n and χ~0Φ~c^-^1^.^2^0∝ M^g (where Φ~c is the critical volume fraction of diethyl maleate, M is the molar mass of n-alkane) with n=0.22±0.03 and g=-0.07±0.09, which are in agreement with the theoretical values of 0.18 and -0.06 proposed by us recently.

Key words NORMAL PARAFFIN CRITICAL REGION TURBIDITY LIGHT SCATTERING

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