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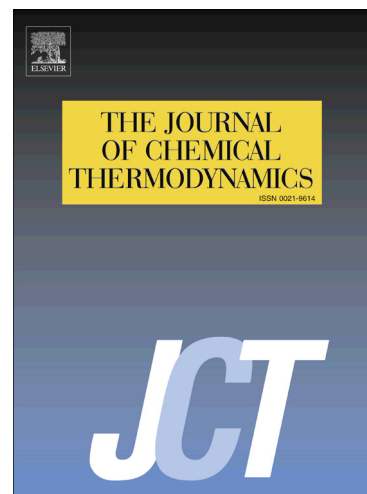
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Thermodynamic and thermal properties of the C₆₀-L-lysine derivative

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Abstract

In the present research, the low-temperature molar heat capacity, $C_{p,m}^{\circ}$, of C₆₀ – L-lysine derivative was measured using adiabatic calorimetry from $T = 13$ K to $T = 326$ K. The respective molar third law entropy at $T = 298.15$ K, S_m° , was calculated giving (1110 ± 3) J·K⁻¹·mol⁻¹ for C₆₀ – L-lysine derivative. Smoothed $C_{p,m}^{\circ}(T)$ values between $T \rightarrow 0$ K and 320 K are presented along with the values for S_m° and the functions $[H_m^{\circ}(T) - H_m^{\circ}(0)]$ and $[G_m^{\circ}(T) - H_m^{\circ}(0)]$. The standard molar entropy of formation, $\Delta_f S_m^{\circ}$, at $T = 298.15$ K was calculated for the compound under study in the crystalline state giving -1916 ± 5 J·K⁻¹·mol⁻¹. The complex thermal analysis of the C₆₀-Lys crystallohydrate was performed from $T = 300$ to $T = 1323$ K.

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