

Surface properties of aqueous solutions of L-leucine.

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The surface tension, σ , of solutions of l-leucine $(\text{CH}_3)_2\text{CHCH}_2\text{CH}(\text{NH}_2)\text{COOH}$ in water, as well as in aqueous solutions of NaOH and HCl were measured in the temperature range between 278 and 308 K using the Wilhelmy plate method. l-Leucine was found to be a very weak surfactant, which can be understood if assuming strong interactions of this solute with the water structure. Striking differences were observed in the surface entropy of l-leucine solutions in water, 0.5 M HCl and 0.5 M NaOH. Moreover, surface activity of the solute is much lower than that supposed taking into account the hydrophobicity of this amino acid. It was concluded that the observed phenomena are caused by the water structure changes close to the side chain of leucine, caused by enforced hydrophobic hydration, i.e. formation of clathrate-like hydrates.

Słowa kluczowe

Air-liquid interface, Surface tension, Surface entropy, Aqueous solutions, Liquid structure, l-Leucine

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