

Interaction of l-alanyl-l-valine and l-valyl-l-alanine with organic vapors: Thermal stability of clathrates, sorption capacity and the change in the morphology of dipeptide films

Ziganshin M., Gubina N., Gerasimov A., Gorbachuk V., Ziganshina S., Chuklanov A., Bukharaev A.

Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

© 2015 the Owner Societies. The strong effect of the amino acid sequence in l-alanyl-l-valine and l-valyl-l-alanine on their sorption properties toward organic compounds and water, and the thermal stability of the inclusion compounds of these dipeptides have been found. Generally, l-valyl-l-alanine has a greater sorption capacity for the studied compounds, but the thermal stability of the l-alanyl-l-valine clathrates is higher. Unusual selectivity of l-valyl-l-alanine for vapors of few chloroalkanes was observed. The correlation between the change in the surface morphology of thin film of dipeptides and stoichiometry of their clathrates with organic compounds was found. This discovery may be used to predict the influence of vapors on the morphology of films of short-chain oligopeptides.

<http://dx.doi.org/10.1039/c5cp03309h>
