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Effect of the Polarizability of Organic Compounds on Isotherms of Sorption of Their Vapors with Solid tert-Butylcalix[4]arene

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Abstract

The stoichiometry and free energy of formation of saturated solid host-guest complexes were determined from the sorption isotherms of the vapors of organic compounds of various classes with solid tert-butylcalix[4]arene and from their limiting activity coefficients in toluene at 298 K. The contribution of the supramolecular effect to the free energy of formation of these complexes was estimated. The complexation stoichiometry and the observed supramolecular effect decrease with increasing molar refraction of the guest compound. The complexation stoichiometry is a step function of the molar refraction of the guest molecule.
