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Study of receptor properties of organophosphorous dendrimer various generations toward vapors of aliphatic alcohols and water

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Abstract

In this paper, the character of the influence of generation of organophosphorus dendrimer for its receptor properties toward aliphatic alcohols C_1-C_4 and water was established. The effect of molecular size of aliphatic alcohols on the sorption capacity of organophosphorus dendrimer was studied using quartz crystal microbalance. The surface of the sensors based on the studied dendrimers was characterized by atomic force microscopy. The reversibility of sorbate binding was studied by simultaneous thermogravimetry and differential scanning calorimetry analysis with mass-spectrometric analysis of evolved gases. Using results of thermal analysis the technique for low-temperature regeneration of gravimetric sensors based on the studied dendrimers was developed.