APPLICATION OF THE NEW METHOD OF THREE-PARAMETRIC CHARACTERIZATION IN THE CHOICE OF GAS CHROMATOGRAPHIC STATIONARY PHASES

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A mathematical model is proposed, based on the representation of the intermolecular interaction energy as a sum of three terms: non-polar, polar and hydrogen bond energies, which depend on three parameters for each of the energies - the generalized charge, dipole moments and the probability of hydrogen bond formation. The concepts of polarity and hydrophilicity are proposed for the characterization of substances as objects of intermolecular interaction [1]. Characteristics can be found both from chromatographic experiments and a priori according to the molecular formula [2]. The found characteristics of substances can be displayed on the selectivity map in the coordinates polarity-hydrophilicity. The map is used to classify gas chromatographic stationary phases and analytes, which allows you to choose the most suitable phase for separation according to the principle "like-in-like". A large number of components in the chromatographic sample, it is advisable to reduce, highlighting the target analytes; for this purpose, special precolumns are used, sorbing target components on themselves.

References:
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