

WATER BINDING THROUGH POLYACRYLAMIDE HYDROGEL AND THE INFLUENCE OF ITS PRELIMINARY SATURATION BY ENOXIL

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Abstract. The state of water in a polyacrylamide gel has been studied by the ¹H NMR spectroscopy. It has been shown that water is in a strongly associated state in the form of clusters with radius is in the range of R= 0.6-30 nm. The introduction of chloroform into the gel increases the binding of absorbed water, which indicates the effect of CDCl₃ on the structure of water-filled cavities formed by the polymer linkage. Trifluoroacetic acid (TFA) reduces the interaction of the polymer with water, probably due to its binding to nitrogen-containing groups. Even more the interphase energy of water decreases in the presence of Enoxil. This decrease makes it possible to determine the free energy of the interaction of Enoxil- polyacrylamide gels, which is maximal in air and decreases in the presence of CDCl₃ and TFA.

Keywords: cluster, Enoxil, ¹H NMR spectroscopy, polyacrylamide gel, polymer linkage.

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