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METHOD OF STUDYING AND APPLYING THE ELECTROLYSIS METHOD FOR DETERMINING THE ELECTRICAL PROPERTIES OF POLYMERS

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ABSTRACT

In this article, it is much slower to dry ions on the volume of a partially stitched polymer and pass through it. This process can be carried out intensively using an electric field. To do this, according to Faraday's electrolysis law, one of the electrodes will need to be inserted into a stitched polymer, which is packed in an ion-permeable membrane bag. An ionic solution is used as a dialysate. By using electrolysis methods to determine the electrical properties of a polymer, students develop the creative ability to produce.

Keywords: creativity, independence, problem situation, potential quantity, ions quantity, ion valence, electron charge, current density.

INTRODUCTION, LITERATURE REVIEW AND DISCUSSION

Ionic conductivity in polymer solution and gels. Ions interact with ionogenic groups of polymers in solution or gels to form two-layer electrical (adsorption and diffusion) layers. When a constant electric field is organized between electrodes lowered into the medium, ions move towards the opposite poles to their charges, that is, according to Faraday's electrolysis law, electrical conductivity is manifested. If ions from the solution are transferred to electrodes through a polymer solution using constant electrical voltage, an electrokinetic z-potential can be determined by an electrophoretic method, which assesses the stability of the “polymer-ion” exposure. In electrophoretic observation, it is noted that the amount of eletrokinetic potential decreases exponentially as we move away from the charged functional group, as well as descriptive indicators of the potential at different points: in the case of a point of view, in the case of a point of view, in the case of a point of view; in the case of a point of In this case, the form is calculated on the basis of the Helmholes-Smolukhovsky equation for potential electrophoresis:

$$\zeta = \frac{h\eta l}{\varepsilon_0 \varepsilon E t} \qquad 1$$

Here - the viscosity of the medium; - dielictric intrusion of the form; – dielectric constant of ε_0 = 8,85 · 10^{-12}; distance of displacement of the boundary between ionic and Polymer Solutions; – time of T – electrophoresis; l-distance between elekrodes; -

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electrical voltage. - the fact that the potential quantity is higher than 30 V in the case of the case represents that the polymer is electrically stable[1].

If the polymer is partially stitched, it is much slower to dry ions to its volume and pass through it. This process can be carried out intensively using an electric field. To do this, according to Faraday's electrolysis law, one of the electrodes will need to be inserted into a stitched polymer packed in an ion-permeable membrane bag[16]. An ionic solution is used as a dialysate. With a constant electrical voltage connection, ions begin to move towards the electrodes, and the passage of ions through the membrane takes place according to the principle of electrodialysis. Such an experiment was carried out in part on the introduction of cobalt (Co^{2+}) ions into the sewed chitosan volume, when the accumulation of ions in a much larger amount in the polymer volume than in a simple whipping process was achieved[2.3].

As soon as the electrodialysis process is stopped, the return output of ions accumulated in volume is extremely slow, and as a result, ions show a certain period (several days) of electrical voltage mavjaudness[9,12,13,14,16]. The observation of such an electrophysical effect is recognized as follows: in the absence of an electric field, ions move chaotically in solutions and gels, as well as in a partially stitched polymer; when an electric field, Ionic movements are ordered; cations move across the field, anions move against them in isolation, resulting in an electric current in the system, and are recognized as ionic conductivity[7,8,10,11].

In the electric field, two forces act on the movement of ions: in the first, the accelerating electric field force (E_e), which is the function of an andigini (E)

$F_e = qE.$ 2

The force of stopping the internal friction of the liquid F, together with the ion Shell r is considered a sphere with a radius, according to the law of Stokes

$F_{st} = 6\pi\eta r\upsilon.$ 3

here - the viscosity of the liquid; the average speed of movement of the sorted out of the ions - in the form of a case. From Fe = Fst in the stabilized movement of ions

$$\upsilon = \frac{qE}{6\pi\eta r} = uE \quad 4$$

is, from which the mobility of ions (u) is equal to:

$$u = \frac{q}{6\pi\eta r} \quad 5$$

if E = 1. according to $\upsilon = qE/6\pi\eta r = uE$, the condition is fulfilled. with a decrease in viscosity according to $u = q/6\pi\eta r$, the mobility of ions increases. If the liquid and ions move at the same speed, then it is , $u = 5\cdot10^{-8}$ m/Vs. according to $\upsilon = qE/6\pi\eta r = uE.$, the following expression is appropriate for the tag density (j:

$j = ezn (u_+ - u_-)E.$ 6

or

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$$j = \kappa E. \quad 7$$

here the case is the specific conductivity of the liquid, which is equal to:

$$\kappa = eZn(u_+ + u_-) = eZn\Delta u. \quad 8$$

In this e-electron charge; Z – ion valence; n-ion concentration.

In the head, the electrical conductivity of the liquid from the side can be determined according to the law of Om by the comparative resistance (ρ)

$$\kappa = \frac{1}{\rho} = \frac{lI}{US}. \quad 9$$

here *l* is the length of the sample, and S is its transverse cross section.

To a certain extent, it depends not only on the amount of ions proportional, but also on the polymer temperature and morphology, namely, on the amount of the orientation factor (β). For example, as can be seen from graphs representing the solustrial permeability of gels based on silk fibro with orientation β = 0.4 and β = 0.8, ionic conductivity is in many ways proportional to the morphological state of the polymer and the amount of ions[2.3.6].

It can be said that the study of the electrical properties of polymer, the production of very solid materials in production, will greatly contribute to the further development of Future Science and Technology[4].

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