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Topchiev Institute of Petrochemical Synthesis
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BOOK of ABSTRACTS

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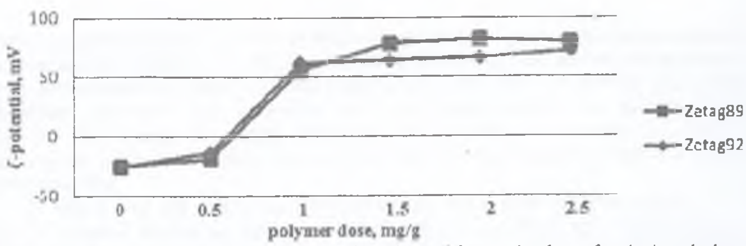

Figure 2. Dependence of electrokinetic potential of kaolin particles on the dose of cationic polyelectrolytes Zetag 89 and Zetag 92.

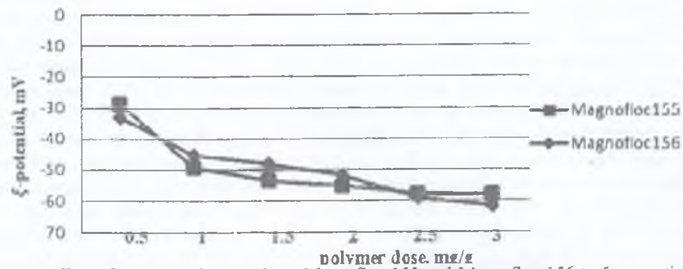

Figure 3. Dose effect of anionic polyelectrolytes Magnofloc 155 and Magnofloc 156 to ξ -potential of kaolin particles.

Flocculation observed in quite high values of ξ-potential (~ +60…+80 mV) flocculation indicates the mixed mechanism of flocculation by cationic polyelectrolytes: reduction of the negative charge of kaolin particles and formation of polymer bridges between particles.

Anionic polyelectrolytes can significantly (up to −60mV) reduce the negative ξ-potential of kaolin (Fig. 3). This points to the flocculation of kaolin particles by anionic polyelectrolytes due to the formation of polymer bridges.

Thus, it was found that both the cationic and anionic polyelectrolytes have flocculating action to the suspension of kaolin.

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SP13 The influence of metal ions on the stability of yeast cells

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Intensive development of biotechnology resulted in a widespread use of microorganisms cells, along with the enzymes. One of the factors determining the efficiency of the practical use of microorganism cells is stability of their suspensions. Of great importance [illegible] of the nature and the charge of coagulating ion on their stability. The aim of this [illegible] is to study the coagulating action of metal ions of different nature on stability of [illegible] *Saccharamyces cerevisae* and *Torulopsus kefir var kumis*. Stability of [illegible] evaluated by the change of optical density of the system. The surface of [illegible] characterized by their distribution between the aqueous and organic phases [illegible] electrophoresis data.

It is stated that the index of hydrophobicity of the cells surface [illegible] properties of organic solvent bordering with their water suspension, and ζ-potential [illegible] value −38 mV for cells of *Saccharamyces cerevisae* and −46 mV for *Torulopsus kefir var kumis* (at pH = 5.0).

According to the effect of Na^+, Cu^{2+}, Co^{2+} ,Pb^{2+}, Al^{3+}, and Fe^{3+} ions on optical [illegible] suspension, their threshold coagulating concentrations were determined. They [illegible] mol/L for Na^+ ions, 10^{-3} mol/L for Pb^{2+}, Cu^{2+} and Co^{2+}, and 10^{-3} mol/L for three [illegible]. Though the increase in the ion charge results in the decrease of coagulating [illegible] increase in the consumption of electrolyte with the growth of valence of [illegible] correspond to the law of "the sixth degree" of Derjaguin B.V. The ratio of [illegible] ions of one-, two- and three valence metals made up 1 : 5 : 33, and found on their [illegible] for ions of two-valence metals make up 2.35 and for ions of three-valence metals [illegible]

The fact that indices of *z* degree approach to the range 2.3…3.5 may [illegible] further aggregation with formation of periodic structures (according to I. F. [illegible] Comparison of contribution of ion liotropicity (according to Rutskov P.A.) [illegible] showed that the effect of liotropicity is noticeable in the series $Pb^{2+} > Cu^{2+} > Co^{2+}$ [illegible] ions of different valence, the effect of the charge appeared to be more significant.

Calculation of the interaction energy of *Torulopsus kefir var kumis* [illegible] showed that the cells are resistant to the action of NaCl at concentrations 10^{-3}…[illegible] Only at concentrations of NaCl more than 10^{-1} mol/L, at the distance between [illegible] being more than 2500 Å, the total energy of particles interaction acquires a [illegible] however its value is insignificant and is equal to $10^{-22}…10^{-21}$ J.

High stability of the cells to the effect of electrolyte – coagulation [illegible] potential pit – is based on considerable solvation of the cells surface and [illegible] multi-charge phosphate groups on the surface of cells over other functional [illegible] carboxyl, hydroxyl and other groups).

SP14 The effect of ionic force and pH to flocculation of TiO_2 water-salted suspensions by hybrid polymer-inorganic nanosystems

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The progress of advanced science and technology is associated with the creation of [illegible] improved materials, which often represent polymer-inorganic hybrid compositions. [illegible] simplest and the most common method of synthesis of polymer-inorganic hybrid compositions is the co-reaction of an organic polymer (polyelectrolyte) with [illegible] nanoparticles, which include particle sols of metal hydroxides.

The aim of the research is to study and compare the kinetic aspects of flocculation of TiO_2 (anatase) suspension by high-molecular weight cationic copolymer of acrylamide [illegible] and polymer-inorganic hybrid systems.