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PHYSICOCHEMICAL CHARACTERISTICS OF THE COMPLEX ON THE BASIS OF COPPER(II) CHLORIDE AND POLYVINYLPIRROLIDONE

Abstract. The structure of a polymermetallic complex on the basis of copper(II) chloride- polyvinylpyrrolidone has been established by potentiometric and conductometric methods. Using the obtained experimental data on determination of a complex structure the curves titration has been constructed and the optimum molar ratios of the reacting components k ($k=[Cu^{2+}]/[PVP]$) were found which equal to 0,30-0,35. The obtained data confirm the formation of a polymeric complex of copper in which the coordination number of metal equal three. The coordination saturation of metal ion in this complex is realized through of solvent molecules or anions of copper salts. By X-ray phase electronic microscopy the elemental structure of complex was investigated and relative contents of various elements in it was obtained. Structure and morphology of obtained copper(II) chloride-polyvinylpyrrolidone complex were studied by IR-spectroscopy and scanning electronic microscopy (SEM). It was found that oxygen atoms of polymeric ligands take part in formation of a coordination bond with a metal ion. Results of electronic microscopy indicate on polymeric films (complex) formation with porous non-uniform amorphous structure. On the basis of experimental and literary data the scheme of formation of a complex $[Cu(PVP)_3Cl_2]$ was suggested.

Key words: polyvinylpyrrolidone, copper, complex formation, composition, morphology, scheme of formation.

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ФИЗИКО-ХИМИЧЕСКИЕ ХАРАКТЕРИСТИКИ КОМПЛЕКСА НА ОСНОВЕ ХЛОРИДА МЕДИ(II) И ПОЛИВИНИЛПИРРОЛИДОНА

Аннотация. Состав полимерметаллического комплекса на основе хлорида меди (II)-поливинилпирролидона был установлен потенциометрическим и кондуктометрическим методами. По полученным экспериментальным данным по определению состава комплекса были построены кривые титрования и найдены оптимальные молярные соотношения реагирующих компонентов k ($k=[Cu^{2+}]/[ПВП]$) равные 0,30-0,35. Полученные данные свидетельствуют об образовании полимерного комплекса меди, в которых реализуется