композиційних плівок зростає, в той час як у плівках, які містять глюкозу, відбувається вимивання останньої. Дія тепла і УФ-випромінювання призводить до часткової деструкції полімеру.

Синтезовані матеріали є екологічно безпечними і можуть бути використані як пакувальні матеріали у харчовій, медичній і фармацевтичній промисловостях, а необхідних властивостей можна досягти шляхом варіювання кількості введеного цукру.

KINETICS OF THE FLOCCULATION PROCESS OF KAOLINITE AT PRESENCE OF BRANCHED AND LINEAR POLYMERS

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Purification of technological water after oil refining from mechanical impurity is currently an important problem. The replacement of Polyacrylamide flocculants with polymers of branched structures seems to be a promising approach to creation of new functional materials for pollution problem solving, because due to structure peculiarities the local concentration of functional groups in branched polymers is notably higher than in linear ones. Copolymers obtained by grafting Polyacrylamide chains onto polysaccharide backbone are of special interest because their internal structure can vary.

Two series of Polyacrylamide grafted to Dextran backbone (D-g-PAA) based on Dextran with M_w=20000 and M_w=70000 were synthesised by radical polymerization using Ce(IV)/HNO_3 redox system. The initiator amount was varied for obtaining the copolymers with 5, 10 or 20 PAA-grafts. Basic hydrolysis was used to obtain anionic derivatives of linear and branched samples.

D-g-PAA copolymers and linear PAA of similar molecular weight in non-ionic and ionic forms were tested as flocculants using kaolin

polydisperse suspensions (3 g/dl). Flocculation process parameters were determined for a wide range of flocculants concentrations. The influence of D-g-PAA internal structure on sedimentation rate and supernatant clarification was studied using the method described in [1].

The kinetics of flocculation process was characterized by the suspension sedimentation rate and the degree of supernatant clarification as optical density (A_{540}) of supernatant liquid after treatment with dose of the flocculants [1].

The analysis of flocculation process parameters has shown that all samples posses high flocculative ability, but branched polymers drastically exceed linear ones in supernatant clarification. Flocculation efficiency is higher for copolymers with long PAA chains and the short distance between tethering points. Anionic samples (both branched and linear) stabilize small particles of kaolinite at $C_{polymer}$<0.005 g/dl, but with increase in concentration are more efficient as nonionic ones in rate of flocculation as well as supernatant clarification.

1. *Kutsevol, N., Soushko, R., Shyichuk, A., and Melnyk, N.: Molecular Crystals and Liquid Crystals, 2008,* ***483 (01)****, 71 – 77.*

SYNTHESIS AND STRUCTURAL PROPERTIES OF STAR-BRANCHED POLYMERS

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This study is aimed to investigate the effect of the distance between grafts on the internal structure of Dextran-*graft*-Polyacrylamide copolymers in aqueous solution. The star-branched polymers with Dextran core (M_w=20000 and M_w=70000) and Polyacrylamide corona with 5, 10, 15 and 20 grafts have been synthesized and characterized by Self-exclusion chromatography (SEC) with light scattering and refractometer detectors. SEC