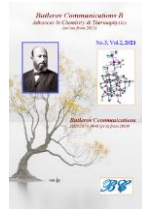
BUTLEROV HERITAGE

Butlerov Communications B
Advances in Chemistry & Thermophysics
ISSN 2074-0948 (print)

2021. Vol.2, No.3, Id.1.
Journal Homepage: https://b-journal.butlerov.com/



Thematic section: Research into New Technologies.
Subsection: Technology of the Inorganic Substances.

Full Paper

The Reference Object Identifier – ROI-jbc-B/21-2-3-1
The Digital Object Identifier – DOI: 10.37952/ROI-jbc-B/21-2-3-1
Received 19 September 2021; Accepted 22 September 2021

Dimensional characteristics of polyelectrolyte complexes based on carbixmethylcellulose and poly-*N*,*N*-diallyl-*N*,*N*-dimethylammonium chloride

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Keywords: sodium salt of carboxymethylcellulose, poly-*N*,*N*-diallyl-*N*,*N*-dimethylammonium chloride, polyelectrolyte complexes, particle radius, aggregate stability.

Abstract

The effect of the preparation conditions on the dimensional characteristics and stability of particles of aqueous dispersions of polyelectrolyte complexes based on sodium salt of carboxymethylcellulose and poly-*N*,*N*-diallyl-*N*,*N*-dimethylammonium chloride has been studied. It is shown that the initial average radii of the dispersion particles are in the range of 100-150 nm, and there are direct dependences of the average particle size on the molar ratio of the components. When studying the change in the aggregate stability of aqueous dispersions of polyelectrolyte complexes at values of the molar ratio of the components included in the range of stable complexes, it was determined within 4 days that particles grow over time, while with a short observation time (1-2 days), the particle size is practically does not depend on the molar ratio of the components. The order of mixing the components of the complexes also practically does not affect the change in the particle size over time. It is shown that in the presence of 0.1 M NaCl solution, the initial radius of the particles of the complexes decreases to 85-90 nm. The addition of more concentrated sodium chloride solutions leads to an increase in the initial particle radius to 250-450 nm. With the passage of time, an increase in the particle size occurs, while a change in the molar ratio of the components practically does not affect the particle size of the complexes. It was found that the nature of the formation of polyelectrolyte complexes is mainly determined by the electrostatic binding forces, and the forces of a non-electrostatic nature also make a significant contribution to the

formation of complexes. In general, the average particle size of polyelectrolyte complexes in the region of relative aggregate stability of dispersed systems is 100-1400 nm, which creates prospects for their use as carriers of drugs for their targeted transport in the body.

For citation: Marina V. Bazunova, Anna A. Smirnova, Robert A. Mustakimov. Dimensional characteristics of polyelectrolyte complexes based on carbixmethylcellulose and poly-*N,N*-diallyl-*N,N*-dimethylammonium chloride. *Butlerov Communications B*. **2021**. Vol.2. No.3. Id.1. DOI: 10.37952/ROI-jbc-B/21-2-3-1

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