

New polymeric ligands based on polyvinylchloride

M.G. Mukhamediev¹, D.J. Bekchanov¹, M.M. Juraev¹, S. Hushvaqov¹,
S. Botirov¹, D. Hrynshpan²

¹National University of Uzbekistan named after Mirzo Ulugbek, Tashkent,
Uzbekistan, e-mail: mmuxamediev@mail.ru

²Research Institute for Physical Chemical Problems, Belarusian State
University, Minsk, Belarus

Ion exchange polymers are widely used as ligands for complex compounds. They are used in many market segments and applications globally [1-2]. Purpose of research work is synthesizing cationites containing sulfuric groups by modifying polyvinylchloride and studying the physical and chemical properties of obtained products [3-5]. As a result of the conducted studies optimal conditions for synthesis of cation exchange resin using granular polyvinylchloride as a substrate have been determined for the first time. It has been found that synthesized ionites have high sorption efficiency, thermal and mechanical resistance and are similar to those of commercial cationit KU-2 in terms of abovementioned characteristics. High sorption factors of synthesized cationites for copper, calcium and magnesium ions have been found. The study of a sulfonic cation exchanger based on polyvinyl chloride under dynamic conditions for softening wastewater showed that its sorption properties after several sorption-desorption processes remained unchanged, therefore it can be recommended for repeated use in softening and purifying natural water at industrial enterprises.

References

- [1] T.A. Inamuddin, Rangreez, M. Asiri, A. (Eds.). Applications of Ion Exchange Materials in Chemical and Food Industries. (2019). doi:10.1007/978-3-030-06085-5
- [2] <http://www.reportlinker.com/p05002441/Ion-Exchange-Materials-Technologies-and-Global-Markets.html>.
- [3] M.K. Rustamov, D.A. Gafurova, M.M. Karimov, et al. Russ. J. Gen. Chem. (2014) 84 (13): 2545.
- [4] D. Bekchanov, M. Mukhamediev, N. Kutlimuratov, et al. Intern. J. Technol. (2020) 11 (4): 794.
- [5] D. Bekchanov, H. Kawakita, M. Mukhamediev, et al. Polymers Adv. Technol. (2021) 32 (1): 457.