

THE DETERMINATION OF SPECIFIC SURFACE OF SODIUM POLYURANATES

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Three different sodium polyuranates were obtained by titration of uranyl nitrate with sodium hydroxide solution labeled with ^{22}Na as a radiotracer. Polyuranates with the composition $^*\text{Na}_2\text{O} \cdot 7,5\text{UO}_3 \cdot 11\text{H}_2\text{O}$ (sample A) , $^*\text{Na}_2\text{O} \cdot 4,3\text{UO}_3 \cdot 4,7\text{H}_2\text{O}$ (sample B), $^*\text{Na}_2\text{O} \cdot 2\text{UO}_3 \cdot 4\text{H}_2\text{O}$ (sample C) were precipitated at pH 5.6 , 8.5 and 11.2, respectively. Specific surface areas of these samples were determined by means of BET method using methylene blue (MB) as an adsorbate. Surfaces of sodium polyuranates were saturated with sequential adsorption of MB. Adsorption data showed S-shape isotherm and were fitted to BET equation. Specific surface areas of the samples calculated from BET isotherm decreased in the order $A > B > C$. Isotope and ion exchange reactions between sodium polyuranates and Li^+ , Na^+ , K^+ , Rb^+ , Cs^+ , Ca^{2+} , Sr^{2+} and Ba^{2+} ions were compared before and after MB coverage. Results showed that isotope and ion exchange fractions decreased on the covered surfaces indicating particle diffusion mechanism dominated exchange reactions.