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Ampholytic microspheres constructed from chitosan and carrageenan in alkali/urea aqueous solution for purification of various wastewater

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Abstract

Natural polymers as abundant resource are excellent candidates of adsorbents for wastewater purification due to their inherent advantages such as strong affinity, biodegradability, and non-toxic. In this work, ampholytic polyelectrolyte microspheres were fabricated successfully via emulsification procedure from the homogeneous chitosan/carrageenan solution in LiOH/KOH/urea aqueous system, showing good compatibility and homogeneous network structure. In the chitosan/carrageenan blend solution, chitosan displayed the neutral feature, as a result of the dissolution caused by destruction of the native intermolecular hydrogen bonds rather than protonation of the amino groups, thus no flocculation occurred here. The experimental results demonstrated that the ampholytic microspheres were composed of positively charged chitosan and negatively charged

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