

Polymer-Immobilized N,N - Bis(acetylaceton)ethylenediamine Cobalt(II) Schiff Base Complex and Its Catalytic Activity in Comparison with That of Its Homogenized Analogue

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Abstract

For the preparation of a heterogenized N,N - bis (acetylaceton) ethylenediamine cobalt(II) Schiff base complex, first crosslinked polymer beads were prepared by the suspension copolymerization of styrene (48.97 mmol, 5.1 g), allyl chloride (48.97 mmol, 3.746 g), and divinyl benzene (DVB; 1.75 mmol, 0.228 g) in the presence of azobisisobutyronitrile (0.9×10^{-3} mmol, 0.15 g) as an initiator at $23 \pm 0.1^\circ\text{C}$ under an inert atmosphere. The copolymerization of styrene, allyl chloride in the presence of gelatin (0.75 g), bentonite (2.0 g), and boric acid (2.5 g) produced beads of different crosslinked densities corresponding to the concentration of DVB in the reaction mixture. The amount of allyl chloride in the prepared beads varied from 5.40 to 7.40 mmol g⁻¹ of beads with the amount of DVB varying from 2.0 to 0.8 mmol in the reaction mixture. A quadridentate Schiff base (acen) was prepared with ethylenediamine (5.0 mmol, 0.3 g) and acetylaceton (10.0 mmol, 1.0 g), and it was used to obtain a homogenized and heterogenized Co (II) (acen)₂ complex. The extent and arrangement of the Schiff base (acen) in the crosslinked beads depended on the availability of DVB in the reaction mixture.