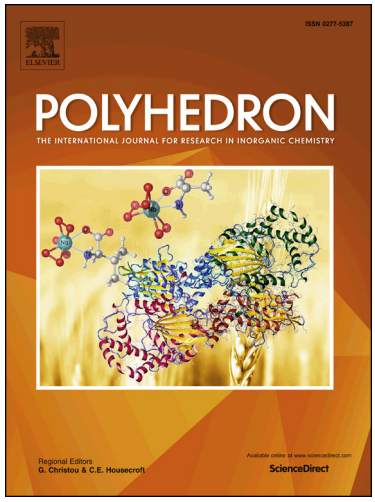

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Metal-Size Influence of Alkali Metal Complexes for Polymerization of *rac*-Lactide

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ABSTRACT

A series of alkali metal complexes with 2, 2'-ethylidenebis(4,6-di-tert-butylphenol) (EDBP-H_2) as a ligand have been synthesized. In the presence of benzyl alcohol as an initiator, all complexes exhibit good catalytic behaviors for the ring-opening polymerization (ROP) of *rac*-lactide, giving desirable molecular weights and narrow molecular weight distributions. The relative order of activities for this series of complexes is Li > Na > K > Rb, which is related to metallic ion radius; and Lewis acidity of these metal ions is also an important factor for the kinetics of the ROP. The relative order of stereoselectivities for this series of complexes is Rb $\approx$ K > Na >> Li in this system. The first example of Rb complex in the ROP of *rac*-lactide in this paper was also described, showing a modest activity and a nice polymerization control, even with a certain isoselectivity.

Keywords: polylactide; ring-opening polymerization; alkali metal complexes; isoselectivity.