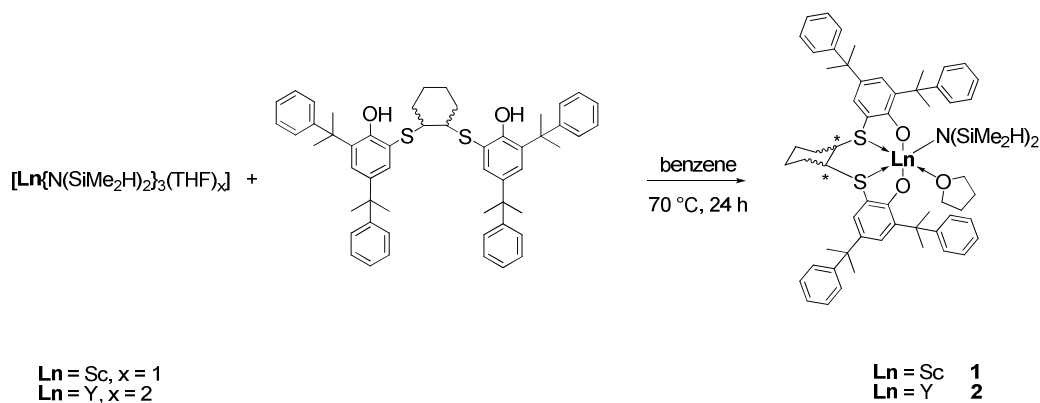


Stereocontrolled Polymerization of Lactide by Bis(phenolato) Rare-Earth Metal Initiators

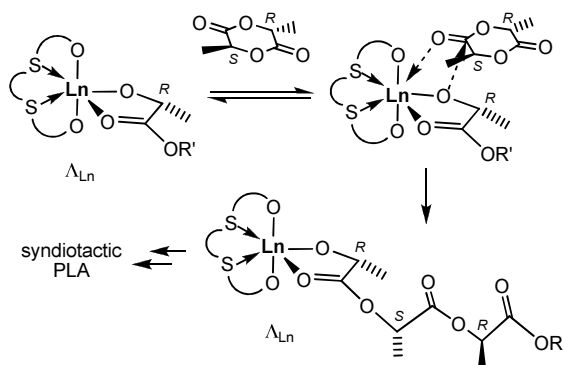
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Monomeric rare-earth metal bis(phenolato) complexes $[(L)Ln\{N(SiMe_2H)_2\}(THF)]$ ($Ln = Sc, Y$) were isolated from the reaction of silylamido complexes $[Ln\{N(SiMe_2H)_2\}_3(THF)_x]$ ($Ln = Sc, x = 1$; $Ln = Y, x = 2$) with one equivalent of tetradentate (OSSO) bis(phenol) *rac*-(2,3-*trans*-butanediyl-1,4-dithiabutanediyl)-2,2'-bis{4,6-di(2-phenyl-2-propyl)phenol}.



These new group 3 metal initiators polymerize *rac*-lactide to heterotactic polylactide (PLA)^[1] and *meso*-lactide to highly syndiotactic PLA. The structure-stereoselectivity relationship depends on the initiator's dynamic properties coupled with the site-selective attack of the diastereotopic sites in the *meso*-lactide.^[2]



References

[1] Ma, H.; Spaniol, T. P.; Okuda, J.; *Inorg. Chem.* **2008**, *47*, 3328.

[2] Buffet, J.-C., Kapelski, A.; Okuda, J.; *in preparation*.