

Use of heterometallic alkali metal–magnesium aryloxides in ring-opening polymerization of cyclic esters.

Autorzy

Rafał Petrus

Tadeusz Lis

Adrian Kowaliński

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Streszczenie

In this work, alkali metal–magnesium aryloxides $[\text{Mg}_2\text{Li}_2(\text{MesalO})_6]$ (**1**), $[\text{Mg}_2\text{Na}_2(\text{MesalO})_6(\text{THF})_x]$ for $x = 2$ or 4 (**2**), and $[\text{Mg}_2\text{K}_2(\text{MesalO})_6(\text{THF})_4]$ (**3**) derived from the reaction of Mg^nBu_2 and $^n\text{BuLi}$, metallic Na or K with methyl salicylate (MesalOH) were used as molecular platforms for the synthesis of new heterometallic compounds $[\text{Mg}_2\text{Li}_2(\text{EtsalO})_6]$ (**4**), $[\text{MgK}(\text{EtsalO})_3]_n$ (**5**), $[\text{Mg}_6\text{Na}_4\text{Al}(\text{MesalO})_{13}(\text{OH})_6(\text{MesalOH})(\text{THF})_{0.5}(\text{H}_2\text{O})_{0.5}]$ (**6**), and $[\text{Mg}_4\text{Na}_2(\text{MesalO})_6(\text{SalO})_2(\text{THF})_4]$ (**7**) (EtsalOH = ethyl salicylate and SalOH_2 = salicylic acid) by the reaction with EtOH, exposure to atmospheric moisture or addition of stoichiometric quantities of water. Compounds **4** and **5** were synthesized by transesterification of **1** and **3**. Cluster **6** was formed haphazardly by exposing a THF solution of **2** derived using Mg^nBu_2 stabilized with 1 wt% AlEt_3 to atmospheric moisture. Compound **7** was synthesized by partial hydrolysis of **2**. Homometallic magnesium aryloxide $[\text{Mg}_4(\text{MesalO})_4(\text{OMe})_4(\text{HOME})_4]$ (**8**) was obtained by reaction of Mg^nBu_2 and MesalOH in a methanol solution. The catalytic activity of **1–3** and **6–8** was investigated in the ring-opening polymerization (ROP) of L-lactide (L-LA) or benzaldehyde Tishchenko reaction.

Adres publiczny

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<https://www.rsc.org/>