

Use of group 13 aryloxides for the synthesis of green chemicals and oxide materials.

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Streszczenie

In this work, group 13 metal aryloxides $[\text{Al}(\text{MesalO})_3]$ (**1**), $[\text{Me}_2\text{Ga}(\text{MesalO})]_2$ (**2**), $[\text{AlLi}_3(\text{MesalO})_6]$ (**3**) and $[\text{Me}_2\text{GaLi}(\text{MesalO})_2(\text{THF})]$ (**4**) were obtained by the reaction of methyl salicylate (MesalOH) with group-13 alkyls MMe_3 (for $\text{M} = \text{Al}, \text{Ga}$) or their combination with BuLi in a THF/alcohol solution. The direct reaction of MMe_3 (for $\text{M} = \text{Al}, \text{Ga}$) and MesalOH (1 : 3) led to compound **1** or **2**, respectively. When the same reactions were carried out with additional BuLi , the heterometallic compound **3** or the mixture of **4** and $[\text{Li}_6(\text{MesalO})_6]$ (**5**) was obtained. Compounds **1–5** were used for the chemical conversion of glycerol to α -hydroxy acid glyceryl esters by alcoholysis of L-lactide (L-LA), glycolide (GA), and ϵ -caprolactone (ϵ -CL). Compounds **1–5** were also efficient initiators for the ring-opening polymerization (ROP) of L-LA, GA, and ϵ -CL using glycerol as a branching agent to synthesize 3-arm polyesters. Heterometallic compounds **3** and **4** were attractive molecular precursors for the preparation of group 13-lithium ceramics, *i.e.* γ - LiAlO_2 and β - LiGaO_2 .

Adres publiczny

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Strona internetowa wydawcy

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