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# Influence of alkoxy ligands on the Cp-Al bonding mode in $[Cp_2Al\text{-}\mu\text{-}OR]_2$ from X-ray crystallographic and $^{27}$Al-NMR spectroscopic solution studies.

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The dicyclopentadienylaluminium alkoxides of general formula $[Cp_2Al\text{-}\mu\text{-}OR]_2$ where R=Me, Et, *n*-Bu, *i*-Bu, $CH_2$*t*-Bu, *s*-Bu, $CH_2Ph$, $C_6H_4$-4-*t*-Bu (**1**–**8**) were prepared by reacting CpNa with $ROAlCl_2$ at the molar ratio 2:1, respectively (**2**–**8**) or from the reaction of $Cp_3Al$ with alcohol (**1**). The compounds were characterised by multinuclear NMR ($^1$H, $^{13}$C, $^{27}$Al) method. The molecular structures of compounds **2**, **5** and **6** were determined by X-ray crystallography. The Cp–Al bonding mode in dicyclopentadienylaluminium alkoxides regarding the steric demands of alkoxy groups is discussed based on $^{27}$Al-NMR chemical shifts and structural data obtained. The meaningful correlation between Cp ring-slippage and $^{27}$Al-NMR chemical shifts was observed.The dicyclopentadienylaluminium alkoxides of general formula $[Cp_2Al\text{-}\mu\text{-}OR]_2$ where R=Me, Et, *n*Bu, *i*Bu, $CH_2$*t*Bu, *s*Bu, $CH_2Ph$, $C_6H_4$-4-*t*Bu (**1**–**8**) were synthesised and structurally characterised by multinuclear NMR and compounds **2**, **5**, **6** by X-ray crystallography as well. The analysis of Cp–Al bond mode in dicyclopentadienylaluminium alkoxides regarding the steric demands of alkoxy groups was presented and the meaningful correlation between Cp ring-slippage and $^{27}$Al-NMR chemical shifts was observed.

Słowa kluczowe

Alkoxy ligands, X-ray crystallography, Cp–Al bond mode

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