Supporting information

Integrated Synthesis of Metallocene@Support Catalysts
Based on Glyphosate and its Zirconium Derivatives

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1, Solid-state $^{31}$P MAS NMR to Cp$_2$Zr@Gly

![Solid-state $^{31}$P MAS NMR to Cp$_2$Zr@Gly](image)

Solid-state $^{31}$P MAS NMR to Cp$_2$Zr@Gly is shown in Fig. S1. The shift of P in Cp$_2$Zr@Gly is at about 15.39.

2, FT-IR Analysis to Cp$_2$ZrCl$_2$@SiO$_2$

![FT-IR spectrum of Cp$_2$ZrCl$_2$@SiO$_2$](image)

FT-IR spectrum of Cp$_2$ZrCl$_2$@SiO$_2$ is shown in Fig. S2. The weak peaks at 3700-3300 cm$^{-1}$ are assigned as structurally inaccessible hydrogen-bonded OH groups. The adsorptions, at about 2964, 2924, and 1634 cm$^{-1}$, corresponding to stretching and bending modes of the cyclopentadienyl ligands are all found in the spectrum. The adsorption coming from the Si-O-Si mode of silica itself is observed at 1103 cm$^{-1}$. The result indicates that the adsorption of Cp$_2$ZrCl$_2$ on surface of silica gel is successful.
3. UV/VIS Analysis to Cp₂ZrCl₂@SiO₂

Fig. S3  UV/Vis spectra of Cp₂ZrCl₂@SiO₂

Fig. S3 presents UV/Vis spectrum of Cp₂ZrCl₂@SiO₂. The absorption from Cp₂ZrCl₂ is found at 278 nm, proving the adsorption of Cp₂ZrCl₂ on surface of silica gel.