Supporting information

for

High molecular weight polyethylenes of narrow dispersity promoted using bis(arylimino)cyclohepta*[b]*pyridine-cobalt catalysts *ortho*-substituted with benzhydryl & cycloalkyl groups

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1. **Figs. S1–S10** $^{1}H/^{13}C$ NMR spectra of the benzhydryl-substituted 2-cycloalkylanilines in $CDCl_3$ at room temperature.

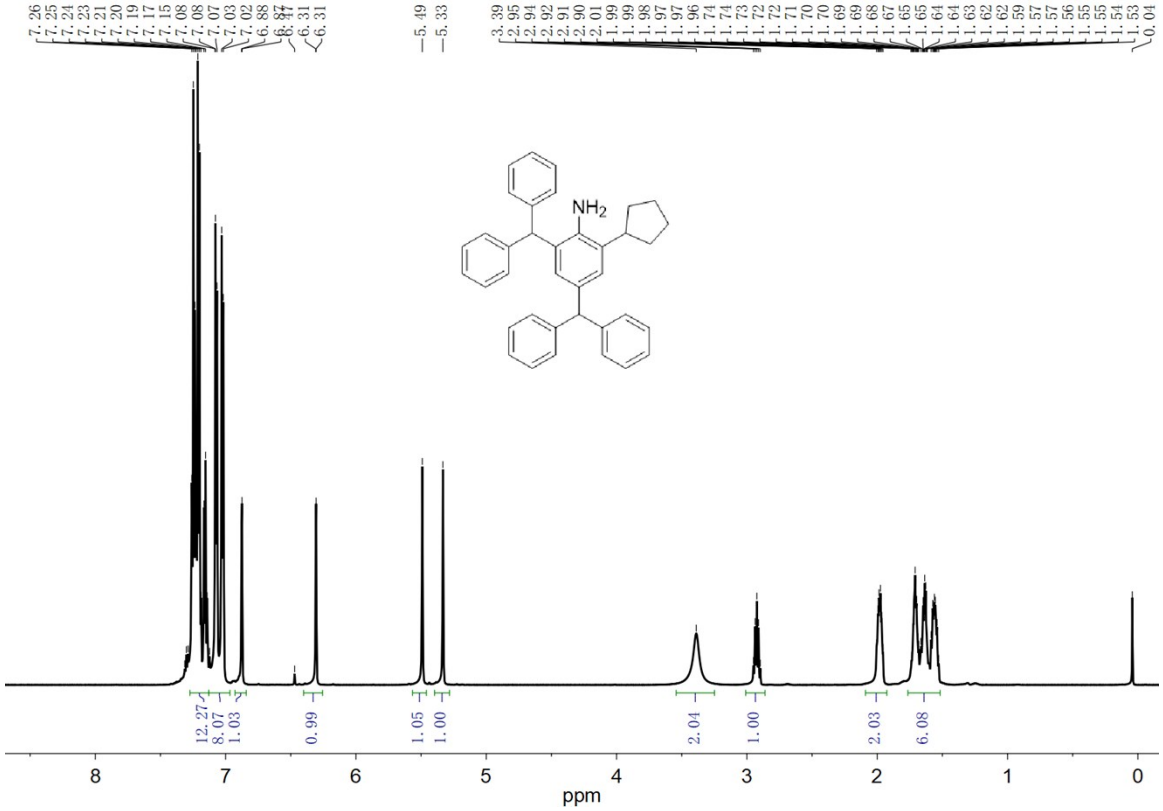

Fig. S1. ^{1}H NMR spectrum of 2,4-bis(diphenylmethyl)-6-cyclopentylaniline in $CDCl_3$ at room temperature

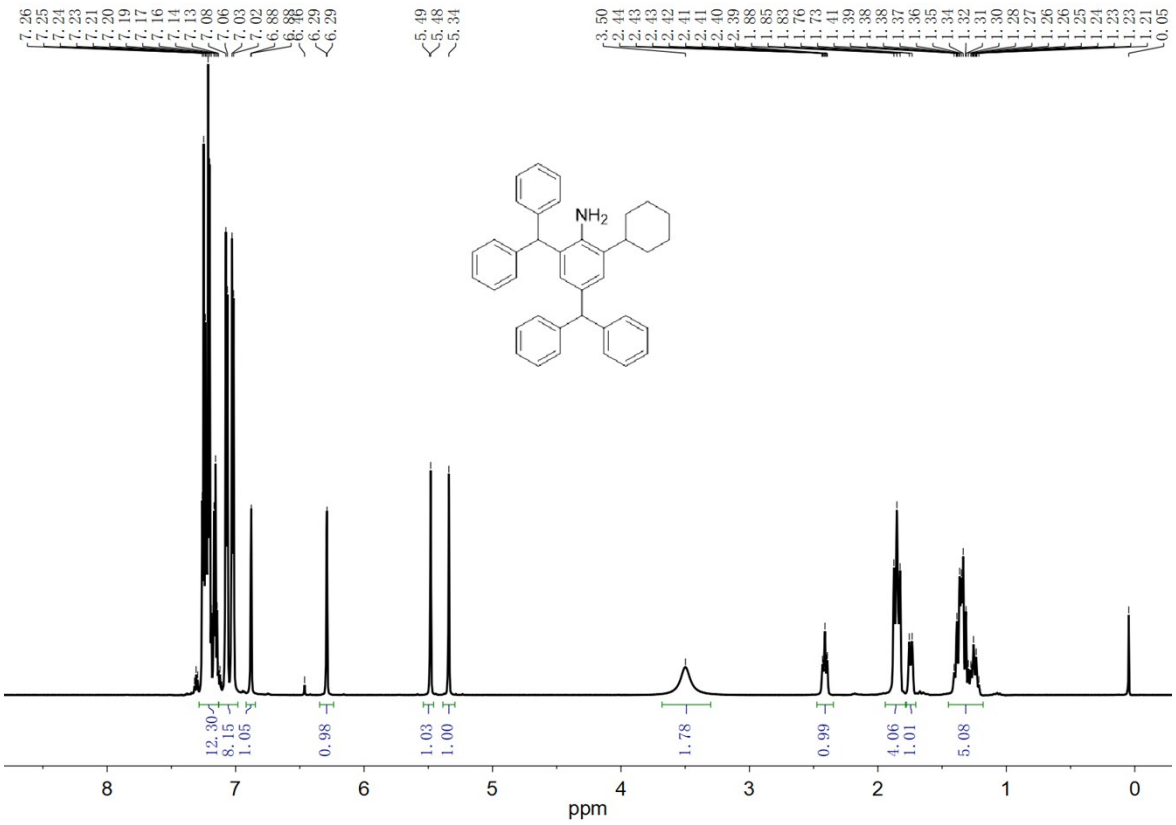

Fig. S2. ^{1}H NMR spectrum of 2,4-bis(diphenylmethyl)-6-cyclohexylaniline in $CDCl_3$ at room temperature

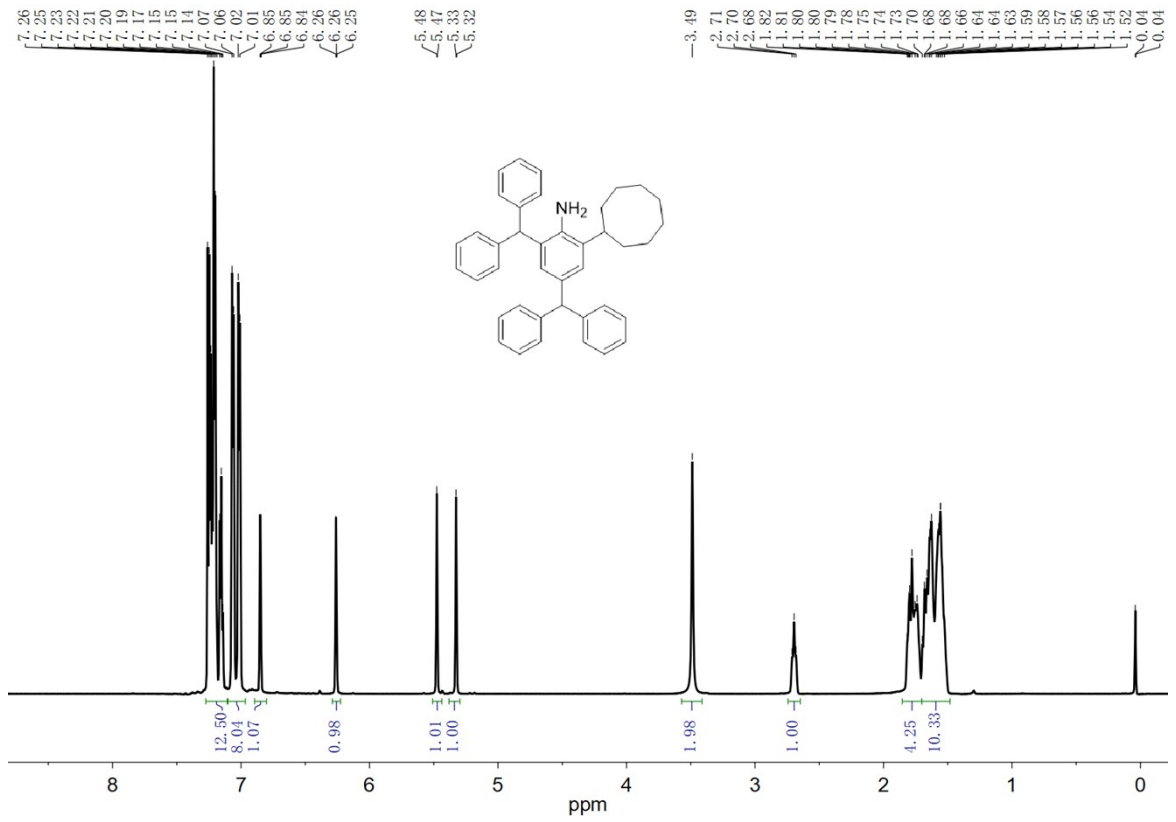

Fig. S3. ^{1}H NMR spectrum of 2,4-bis(diphenylmethyl)-6-cyclooctylaniline in $CDCl_3$ at room temperature

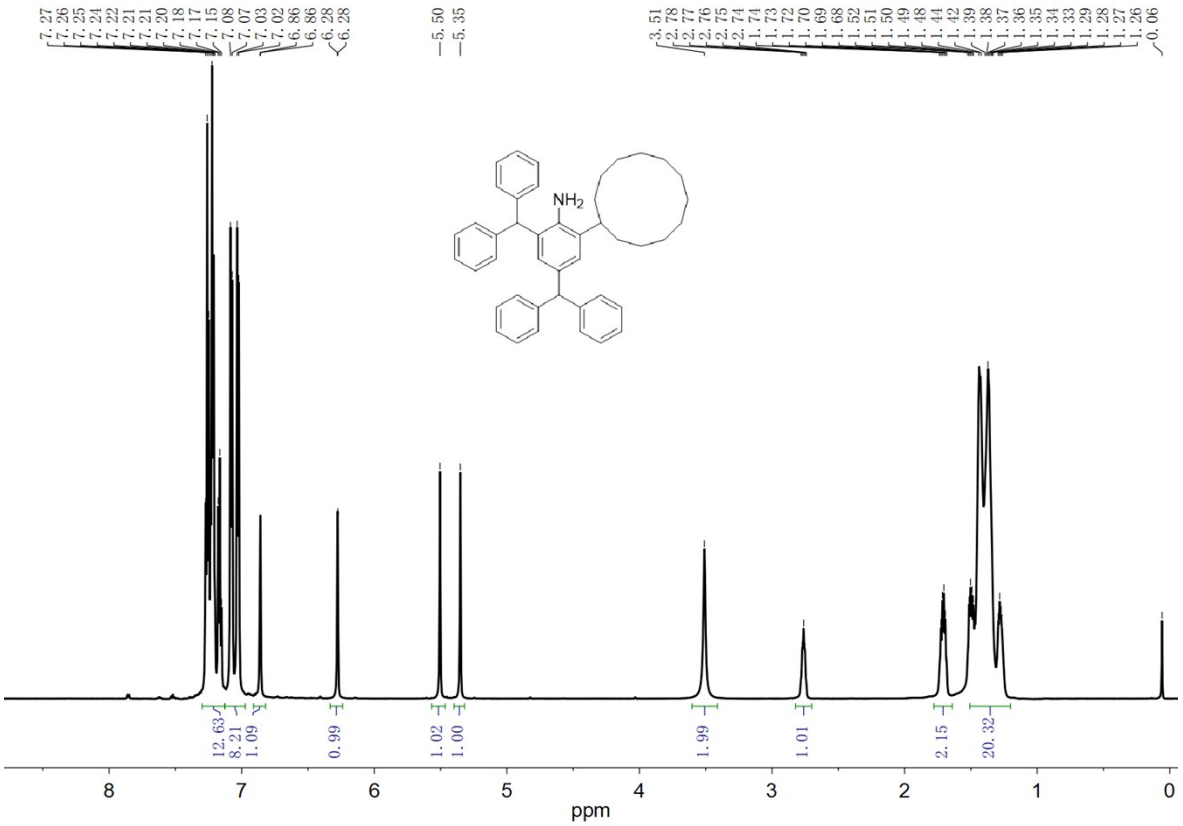

Fig. S4. ^{1}H NMR spectrum of 2,4-bis(diphenylmethyl)-6-cyclododecylaniline in $CDCl_3$ at room temperature

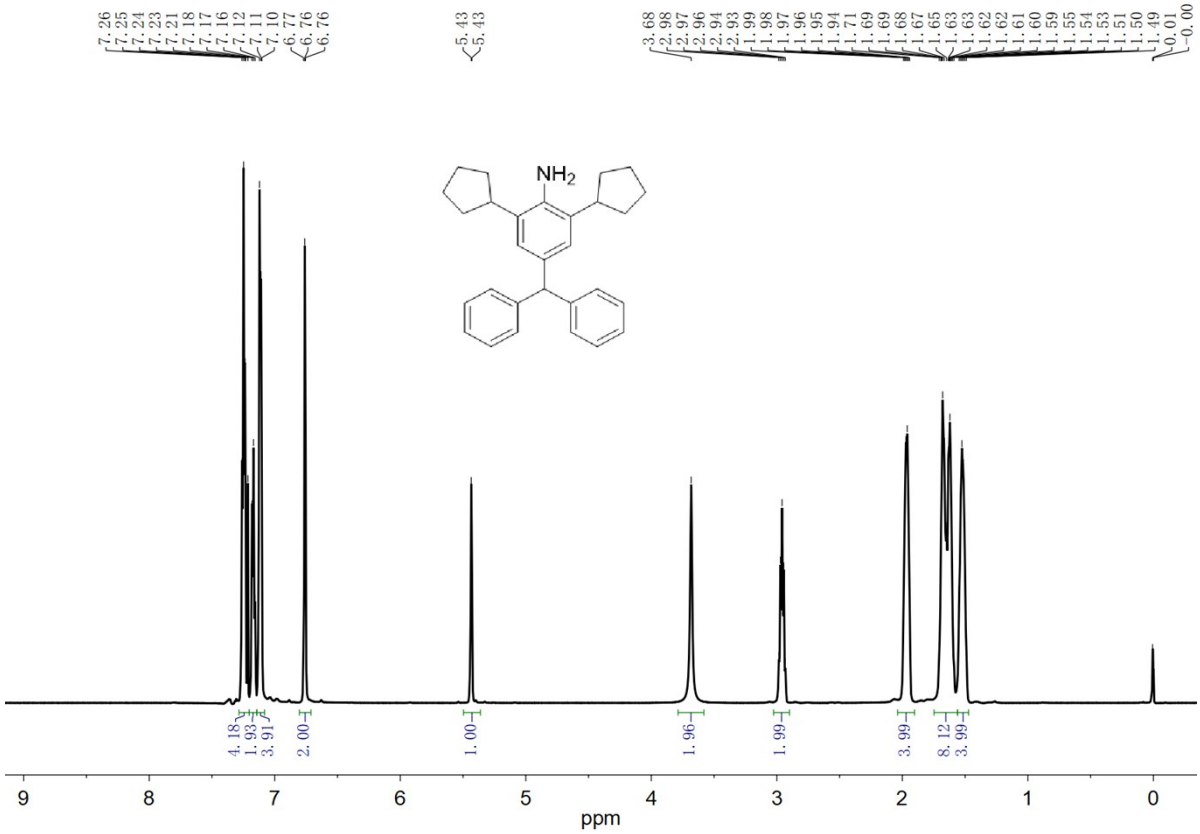

Fig. S5. ^{1}H NMR spectrum of 2,6-bis(cyclopentyl)-4-(diphenylmethyl)aniline in $CDCl_3$ at room temperature

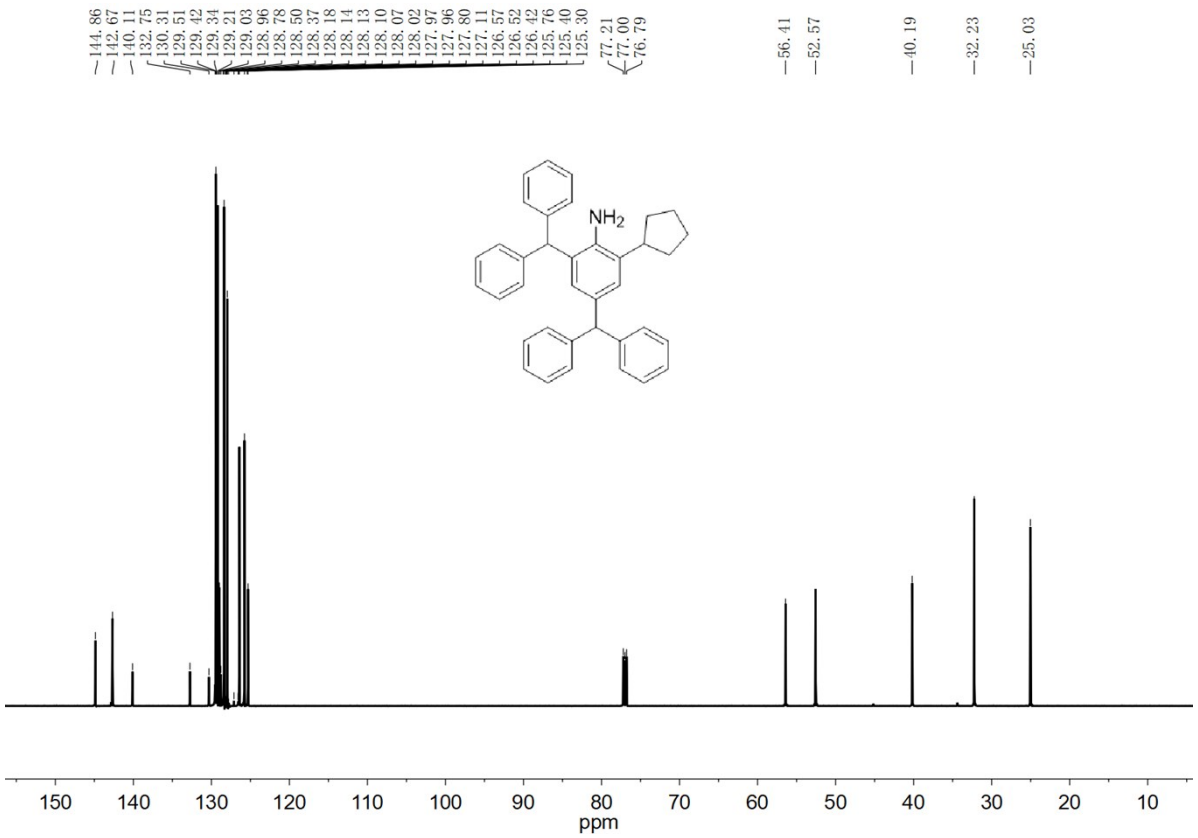

Fig. S6. ^{13}C NMR spectrum of 2,4-bis(diphenylmethyl)-6-cyclopentylaniline in $CDCl_3$ at room temperature

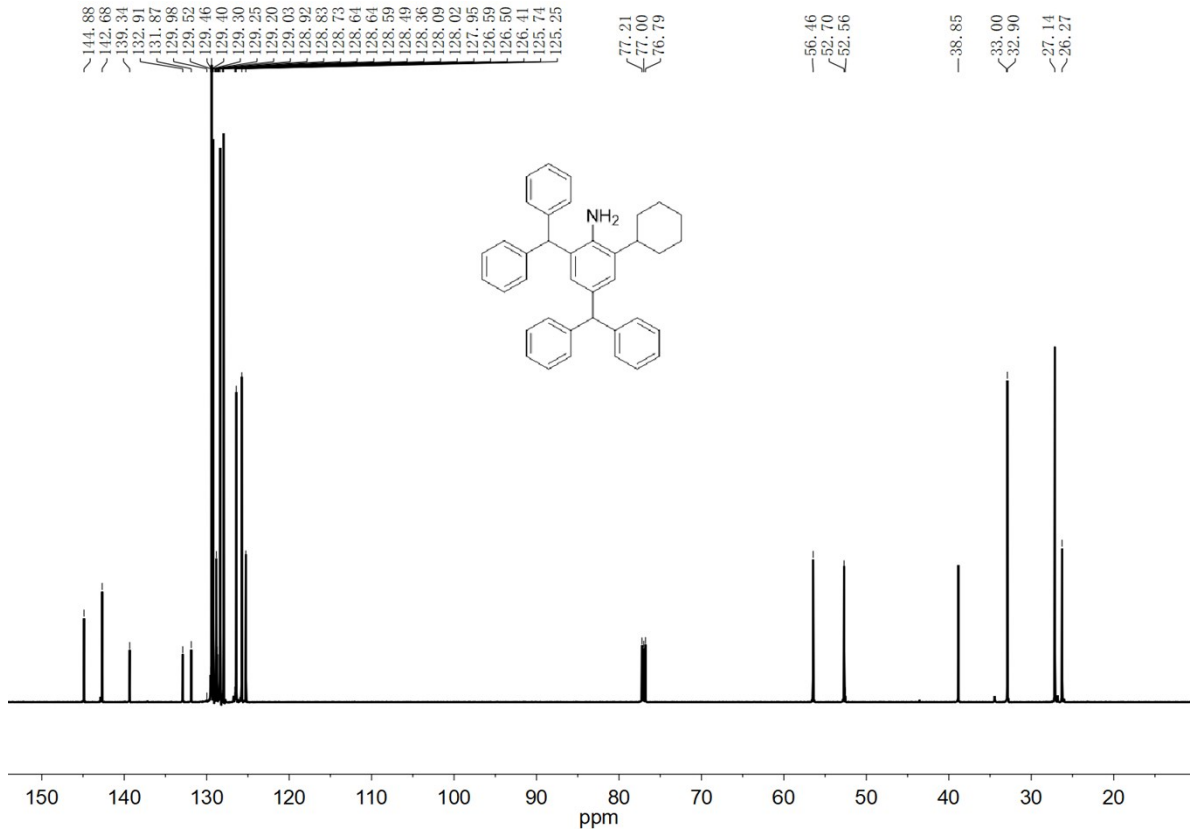

Fig. S7. ^{13}C NMR spectrum of 2,4-bis(diphenylmethyl)-6-cyclohexylaniline in $CDCl_3$ at room temperature

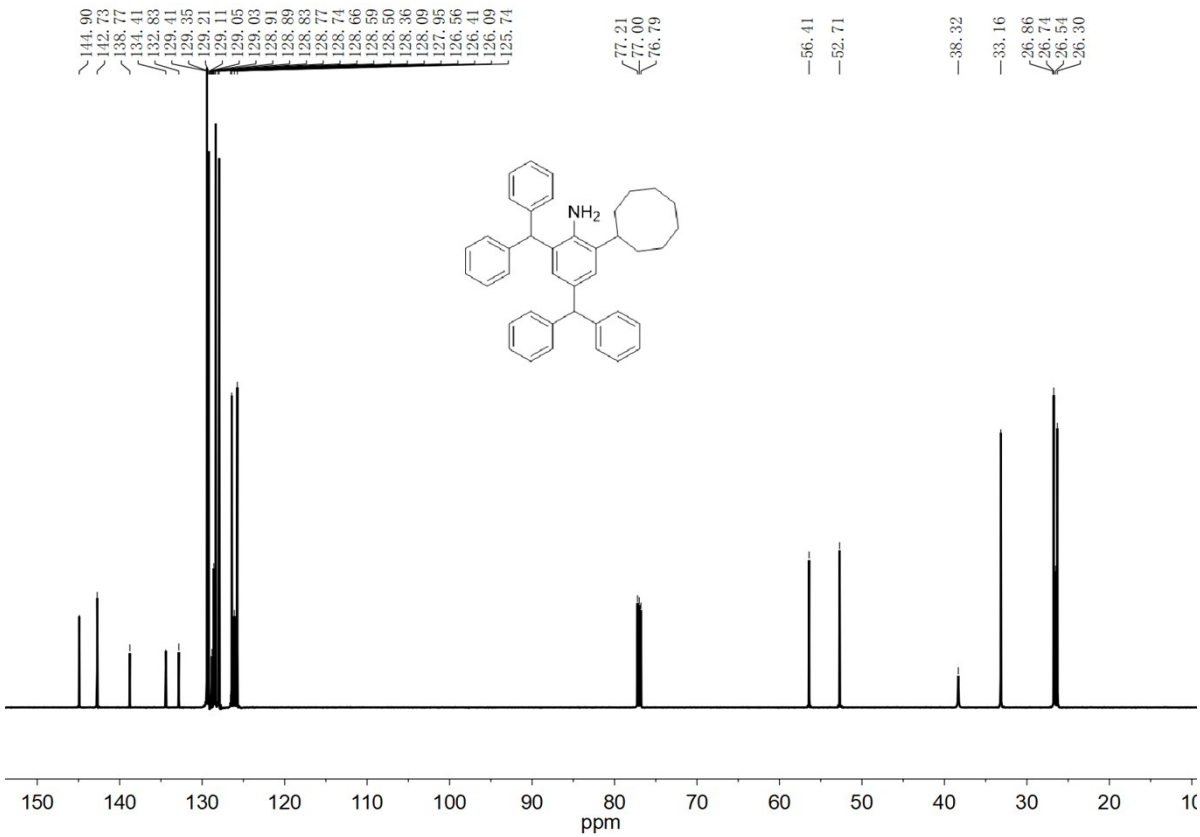

Fig. S8. ^{13}C NMR spectrum of 2,4-bis(diphenylmethyl)-6-cyclooctylaniline in $CDCl_3$ at room temperature

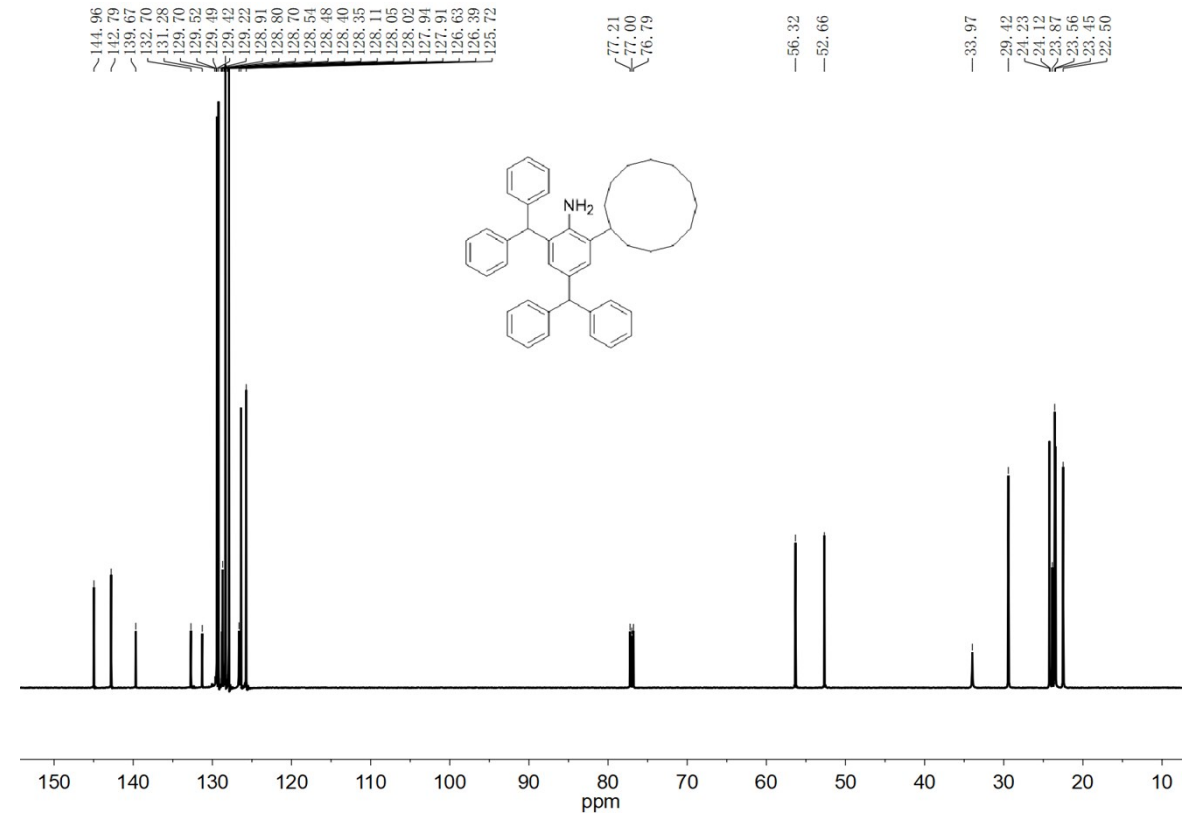

Fig. S9. ^{13}C NMR spectrum of 2,4-bis(diphenylmethyl)-6-cyclododecylaniline in $CDCl_3$ at room temperature

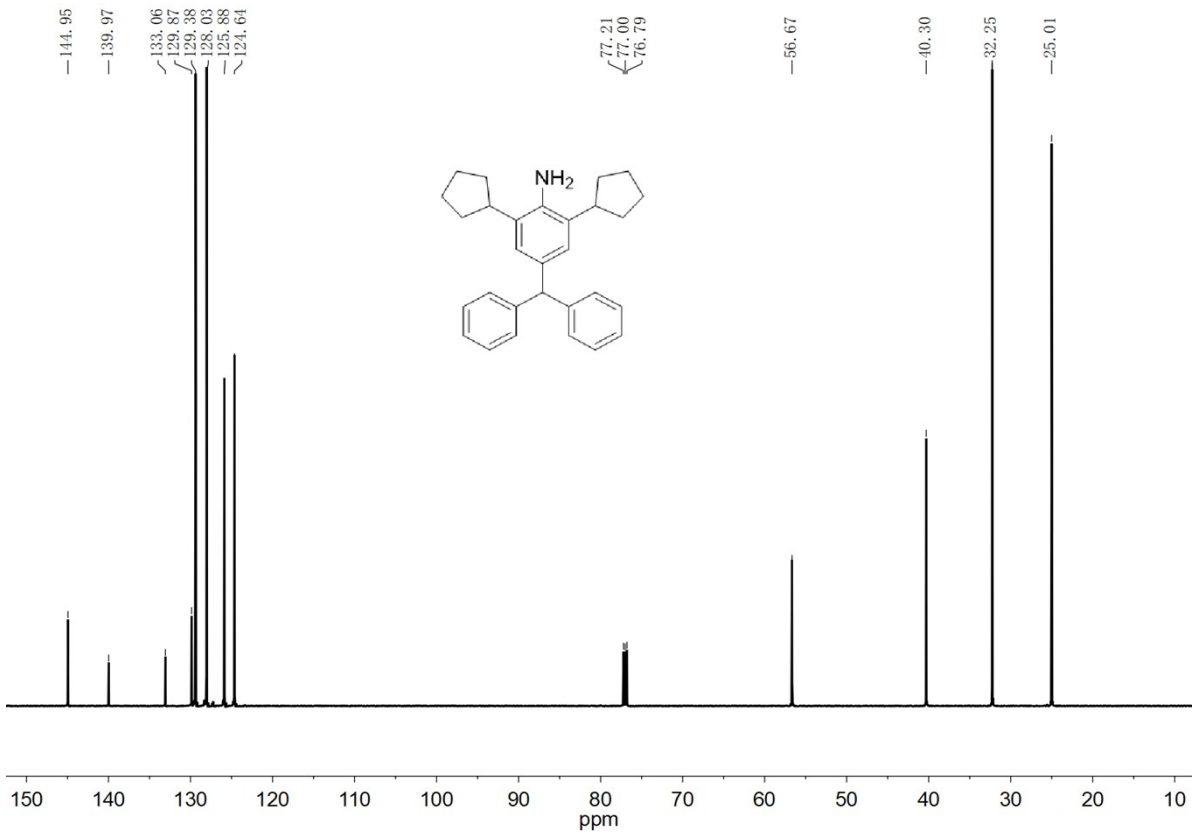

Fig. S10. ^{13}C NMR spectrum of 2,6-bis(cyclopentyl)-4-(diphenylmethyl)aniline in $CDCl_3$ at room temperature

2. General considerations regarding the ^{13}C NMR spectra of the polyethylenes.

A weighed amount of polyethylene (80 – 100 mg) was dissolved in 1,1,2,2-tetrachloroethane-d_2 (2 mL) with TMS as an internal standard and an inverse-gated ^{13}C NMR spectrum was recorded on a Bruker DMX 300 spectrometer at 75.47 MHz in a 5 mm standard glass tube at 100 °C with the number of scans between 2000 and 3000. Operating conditions used: spectral width 17.9856 kHz; acquisition time 1.8219 s; relaxation delay 2.0 s.

An estimation of the branching content was made by integration of the corresponding peaks in the ^{13}C NMR spectra using the approach described in the literature [G. B. Galland, R. Quijada, R. Rojas, G. Bazan, Z. J. A. Komon, NMR Study of Branched Polyethylenes Obtained with Combined Fe and Zr Catalysts, *Macromolecules* 35 (2002) 339–345].