

## Copolymerization of ethylene with norbornene catalyzed by cationic rare-earth metal fluorenyl functionalized N-heterocyclic carbene complexes

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Figure S1 Differential scanning calorimetry (DSC) curve of P(E-co-NB) obtained by **1a**/Al<sup>i</sup>Bu<sub>3</sub>/[Ph<sub>3</sub>C][B(C<sub>6</sub>F<sub>5</sub>)<sub>4</sub>] (entry 1, Table 1)

Figure S2 Differential scanning calorimetry (DSC) curve of P(E-co-NB) obtained by **3a**/Al<sup>i</sup>Bu<sub>3</sub>/[Ph<sub>3</sub>C][B(C<sub>6</sub>F<sub>5</sub>)<sub>4</sub>] (entry 3, Table 1)

Figure S3 Differential scanning calorimetry (DSC) curves of P(E-co-NB)s obtained by **2a**/Al<sup>i</sup>Bu<sub>3</sub>/[Ph<sub>3</sub>C][B(C<sub>6</sub>F<sub>5</sub>)<sub>4</sub>] (entry 2, 5–10, Table 1)

Figure S4 <sup>13</sup>C NMR spectrum of P(E-co-NB) (entry 1, Table 1)

Figure S5 <sup>13</sup>C NMR spectrum of P(E-co-NB) (entry 3, Table 1)

Figure S6 <sup>13</sup>C NMR spectrum of P(E-co-NB) (entry 5, Table 1)

Figure S7 <sup>13</sup>C NMR spectrum of P(E-co-NB) (entry 9, Table 1)

Figure S8 <sup>13</sup>C NMR spectrum of P(E-co-NB) (entry 10, Table 1)

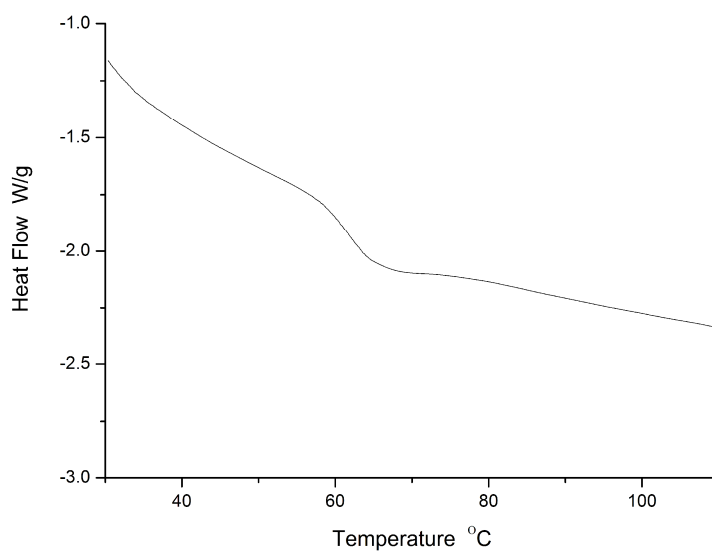


Figure S1 Differential scanning calorimetry (DSC) curve of P(E-co-NB) obtained by **1a**/Al<sup>*i*</sup>Bu<sub>3</sub>/[Ph<sub>3</sub>C][B(C<sub>6</sub>F<sub>5</sub>)<sub>4</sub>] (entry 1, Table 1)

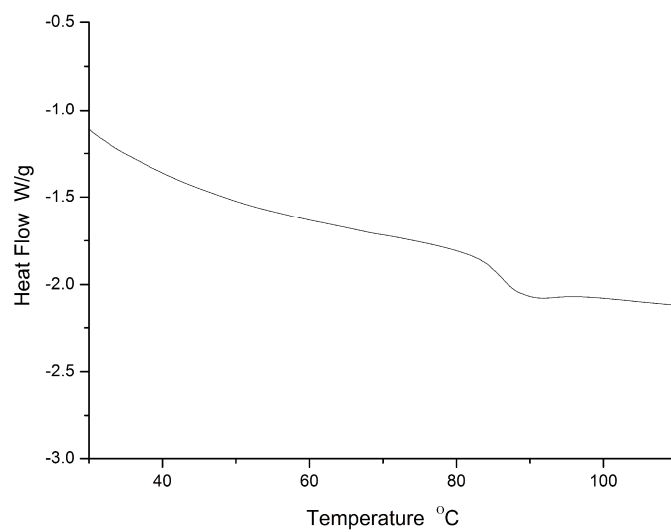


Figure S2 Differential scanning calorimetry (DSC) curve of P(E-co-NB) obtained by **3a**/Al<sup>*i*</sup>Bu<sub>3</sub>/[Ph<sub>3</sub>C][B(C<sub>6</sub>F<sub>5</sub>)<sub>4</sub>] (entry 3, Table 1)

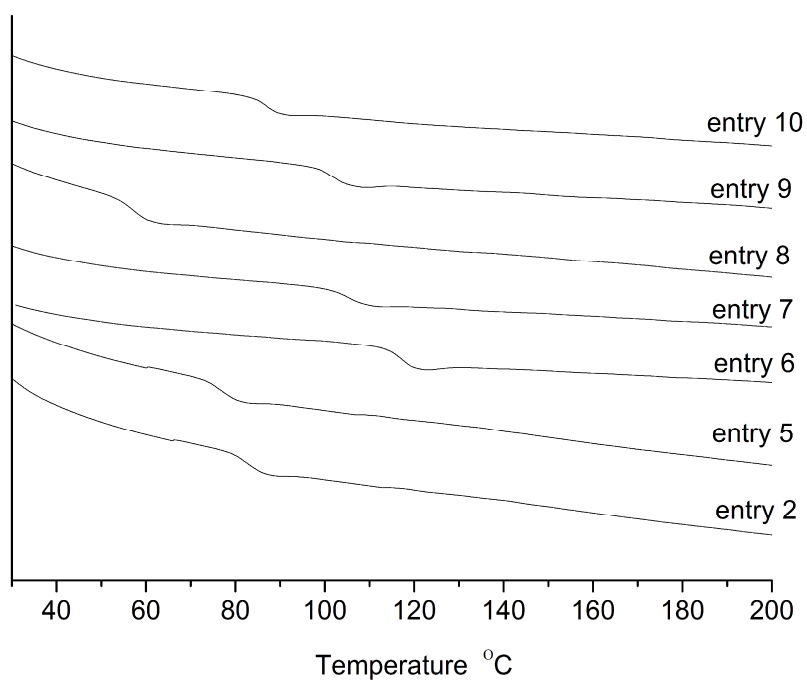


Figure S3 Differential scanning calorimetry (DSC) curves of P(E-co-NB)s obtained by **2a**/Al<sup>i</sup>Bu<sub>3</sub>/[Ph<sub>3</sub>C][B(C<sub>6</sub>F<sub>5</sub>)<sub>4</sub>] (entry 2, 5–10, Table 1)

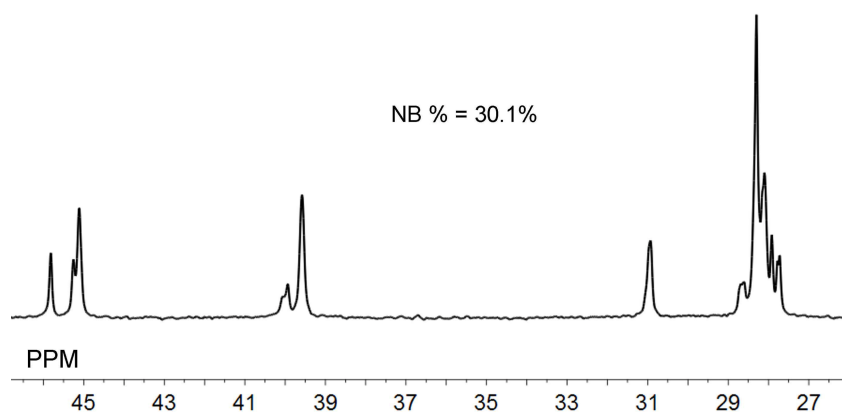


Figure S4 <sup>13</sup>C NMR spectrum of P(E-co-NB) (entry 1, Table 1)

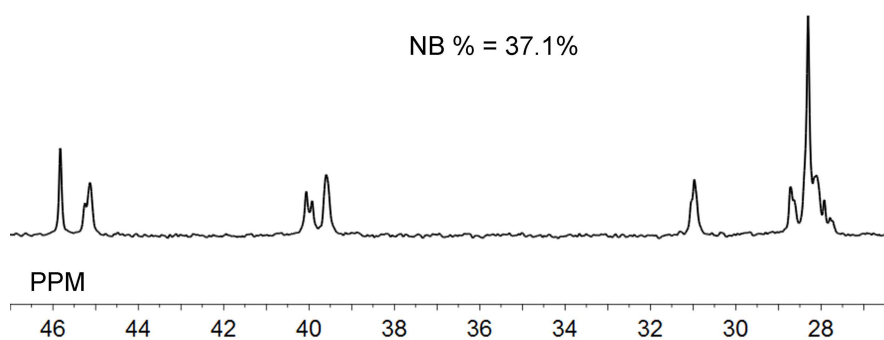


Figure S5  $^{13}\text{C}$  NMR spectrum of P(E-co-NB) (entry 3, Table 1)

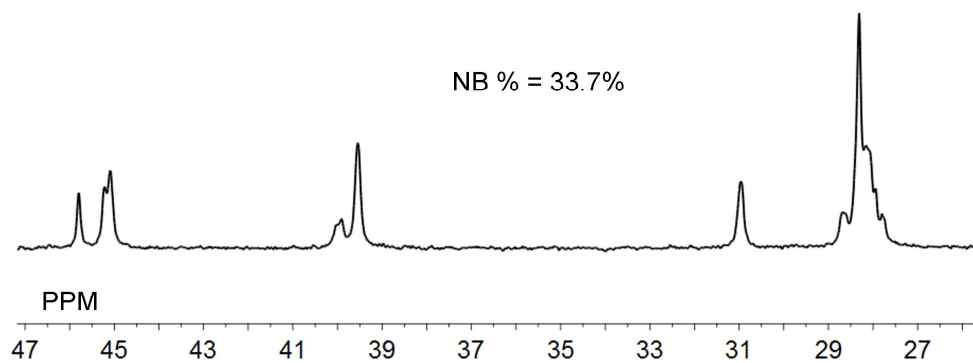


Figure S6  $^{13}\text{C}$  NMR spectrum of P(E-co-NB) (entry 5, Table 1)

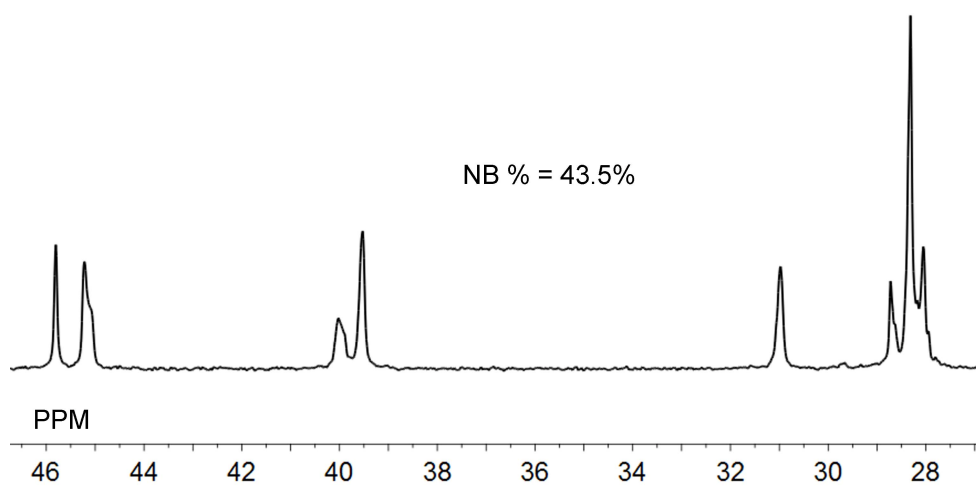


Figure S7  $^{13}\text{C}$  NMR spectrum of P(E-co-NB) (entry 9, Table 1)

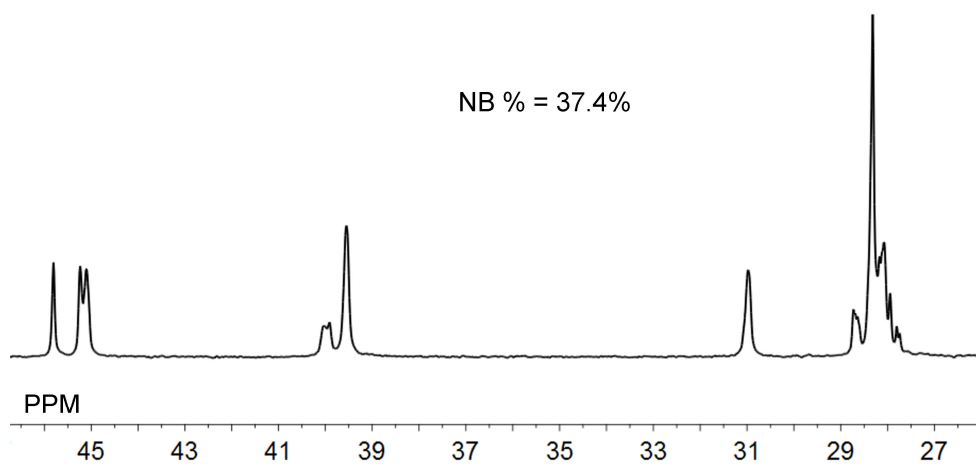


Figure S8  $^{13}\text{C}$  NMR spectrum of P(E-co-NB) (entry 10, Table 1)