

***Supporting Information for***

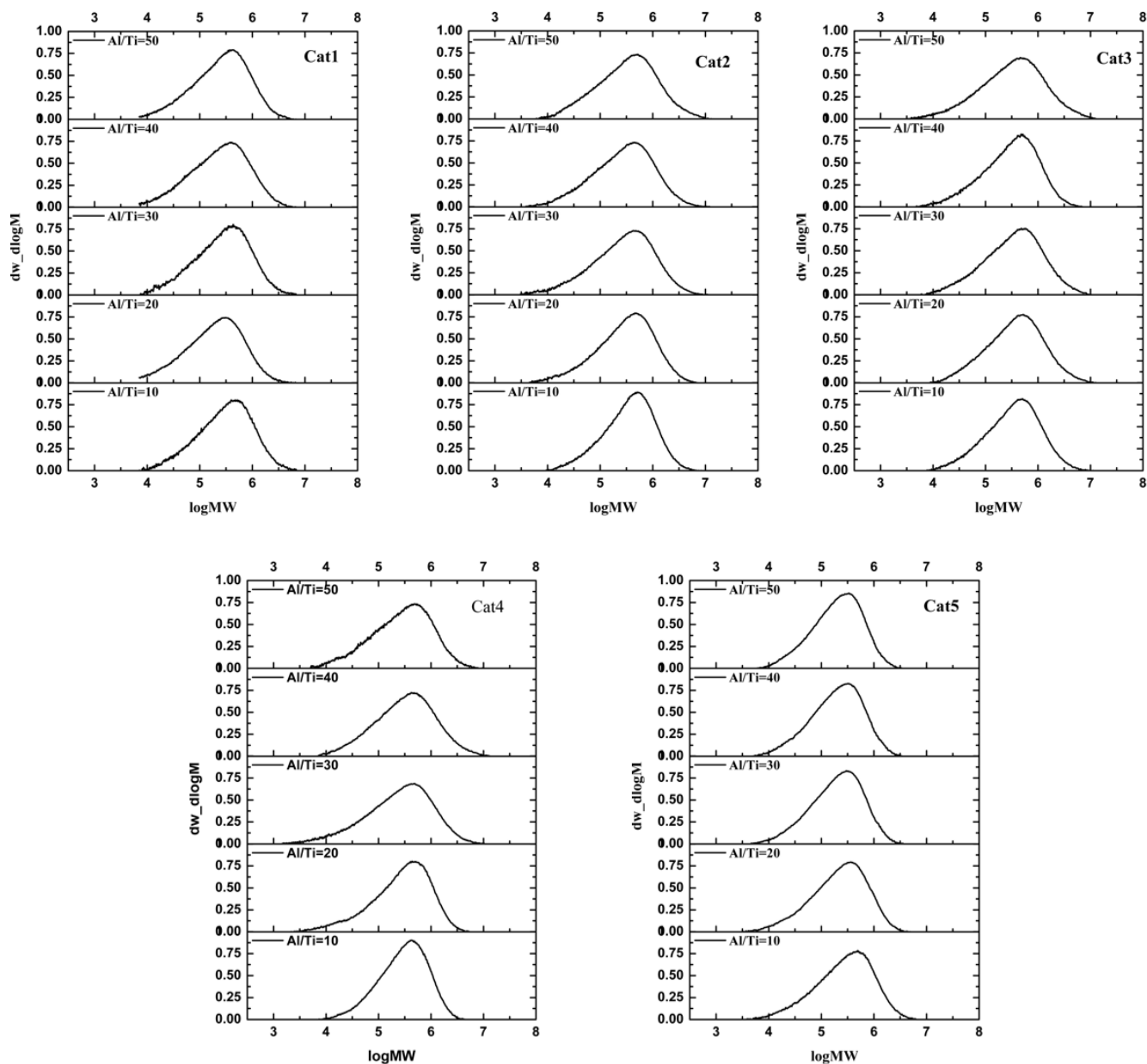
**Effects of Ti/Mg Molar Ratio on Bi-supported SiO<sub>2</sub>/MgCl<sub>2</sub> (ethoxide type)/TiCl<sub>4</sub> Type Catalysts for Ethylene Homopolymerization and Ethylene/1-Hexene Copolymerization**

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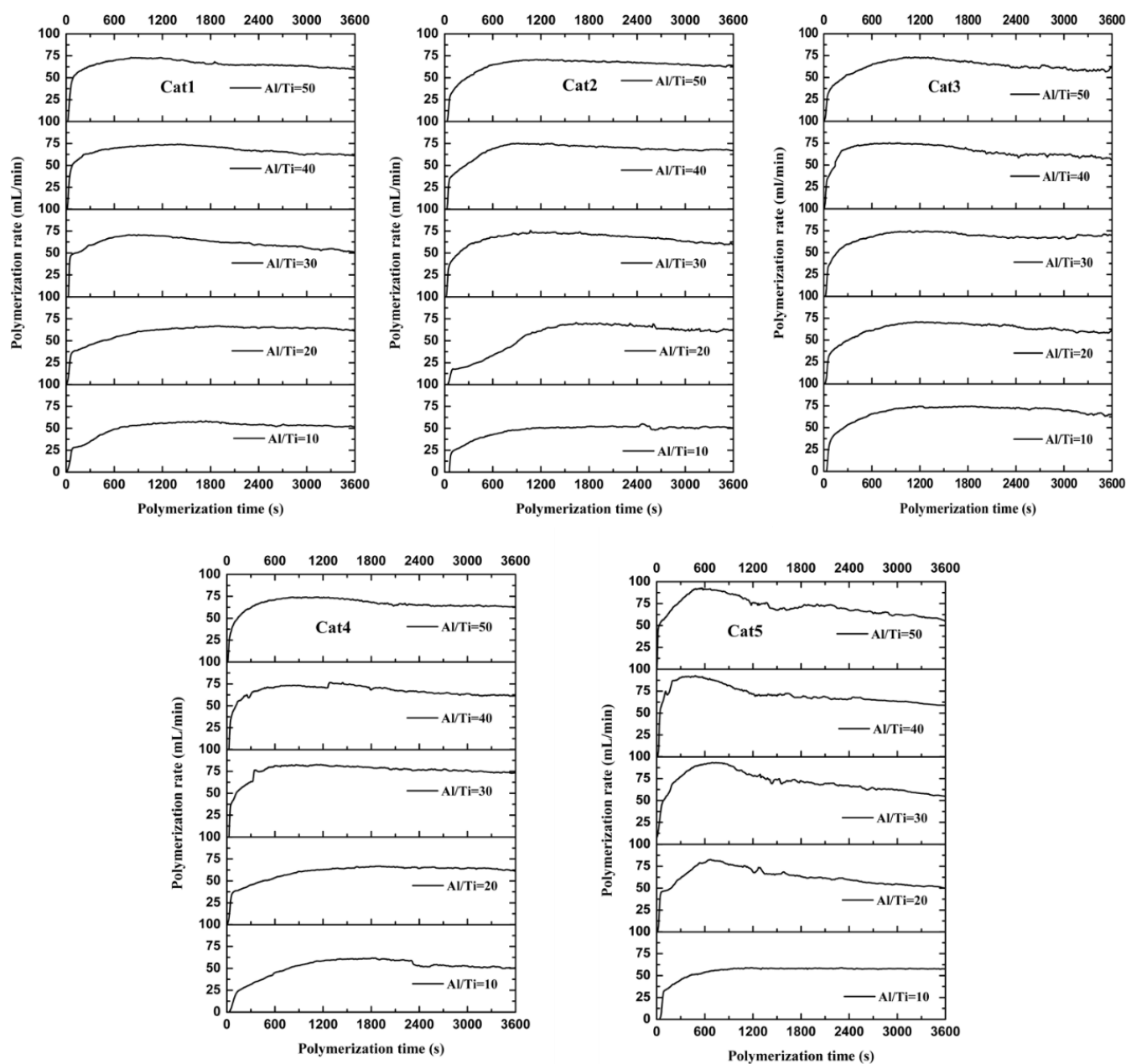
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**1. GPC curves of polyethylene obtained from the catalysts**



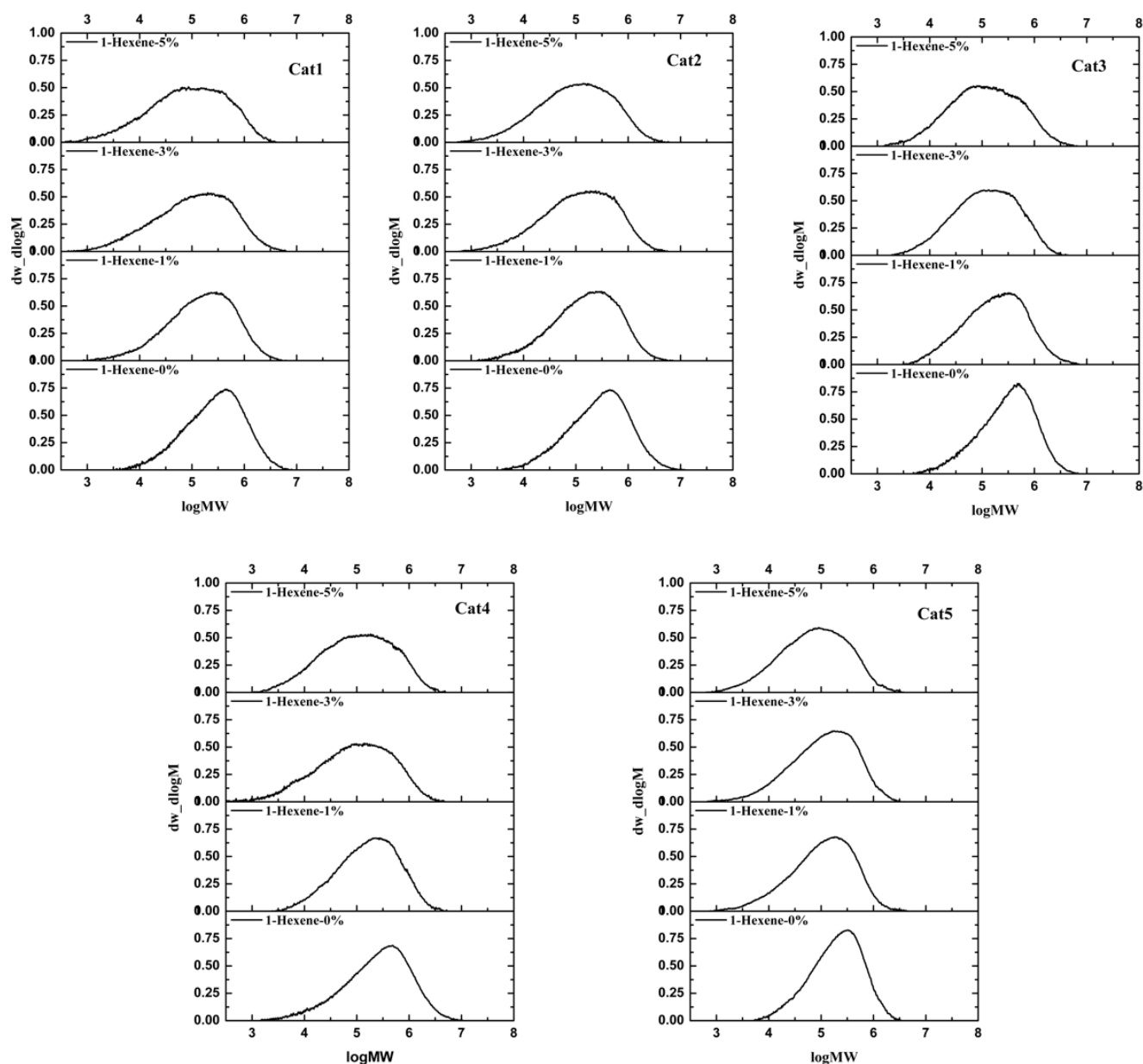
**Figure S1.** GPC curves of ethylene homopolymers obtained from different catalysts: Cat1-Cat5 were prepared with Ti/Mg molar ratio 1.50, 1.75, 2.00, 2.25, 2.50, respectively. Polymerization conditions: catalyst 100 mg, ethylene pressure 0.15 MPa, *n*-heptane 80 mL, TIBA, 70 °C, 1 h.

## 2. Kinetic curves of ethylene homopolymerization with different catalysts



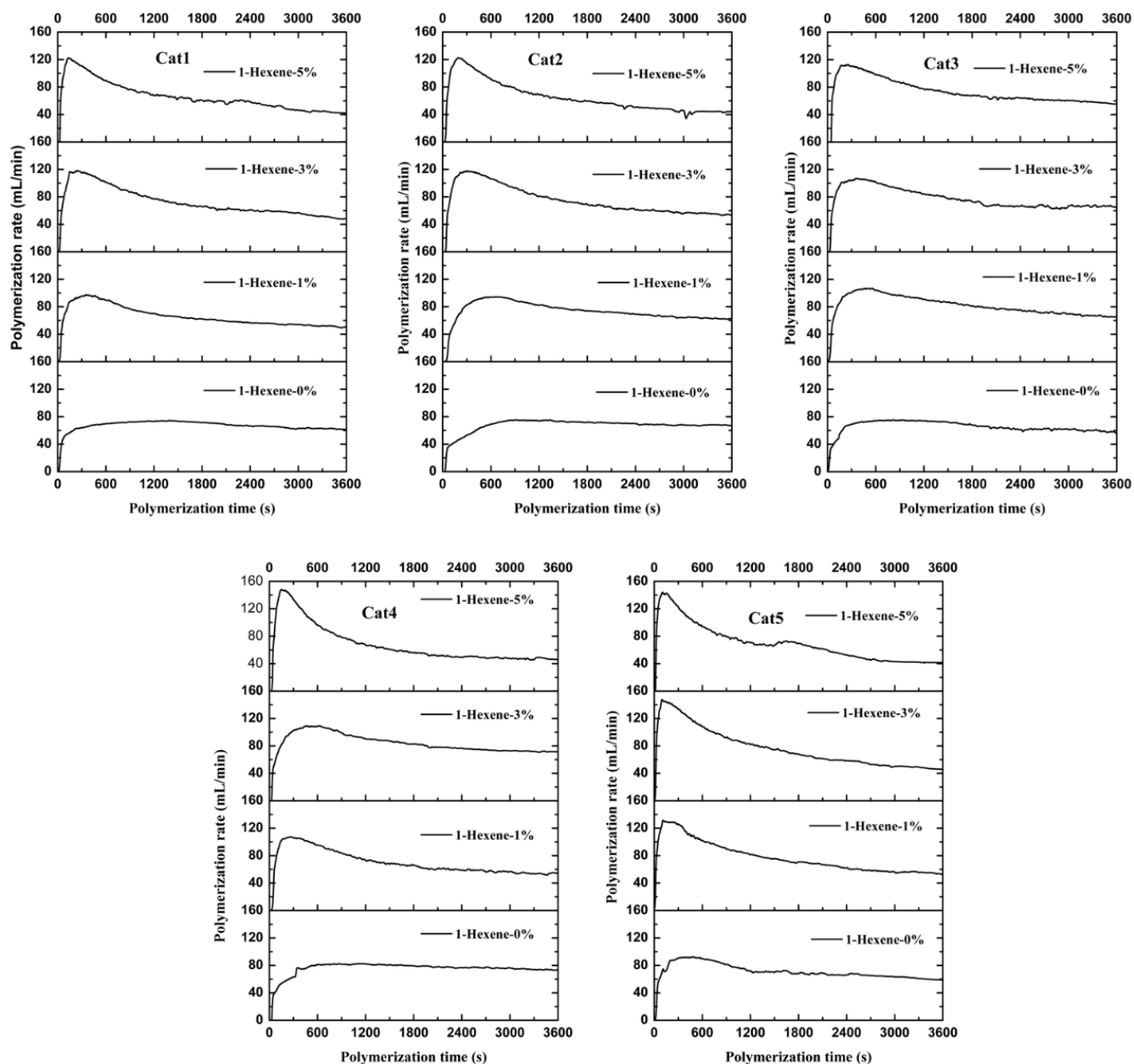
**Figure S2.** Kinetic curves of ethylene homopolymerization with different catalysts at different Al/Ti molar ratio: Cat1-Cat5 were prepared with Ti/Mg molar ratio 1.50, 1.75, 2.00, 2.25, 2.50, respectively. Polymerization conditions: catalyst 100 mg, ethylene pressure 0.15 MPa, *n*-heptane 80 mL, TIBA, 70 °C, 1 h.

### 3. GPC curves of copolymers obtained from the catalysts



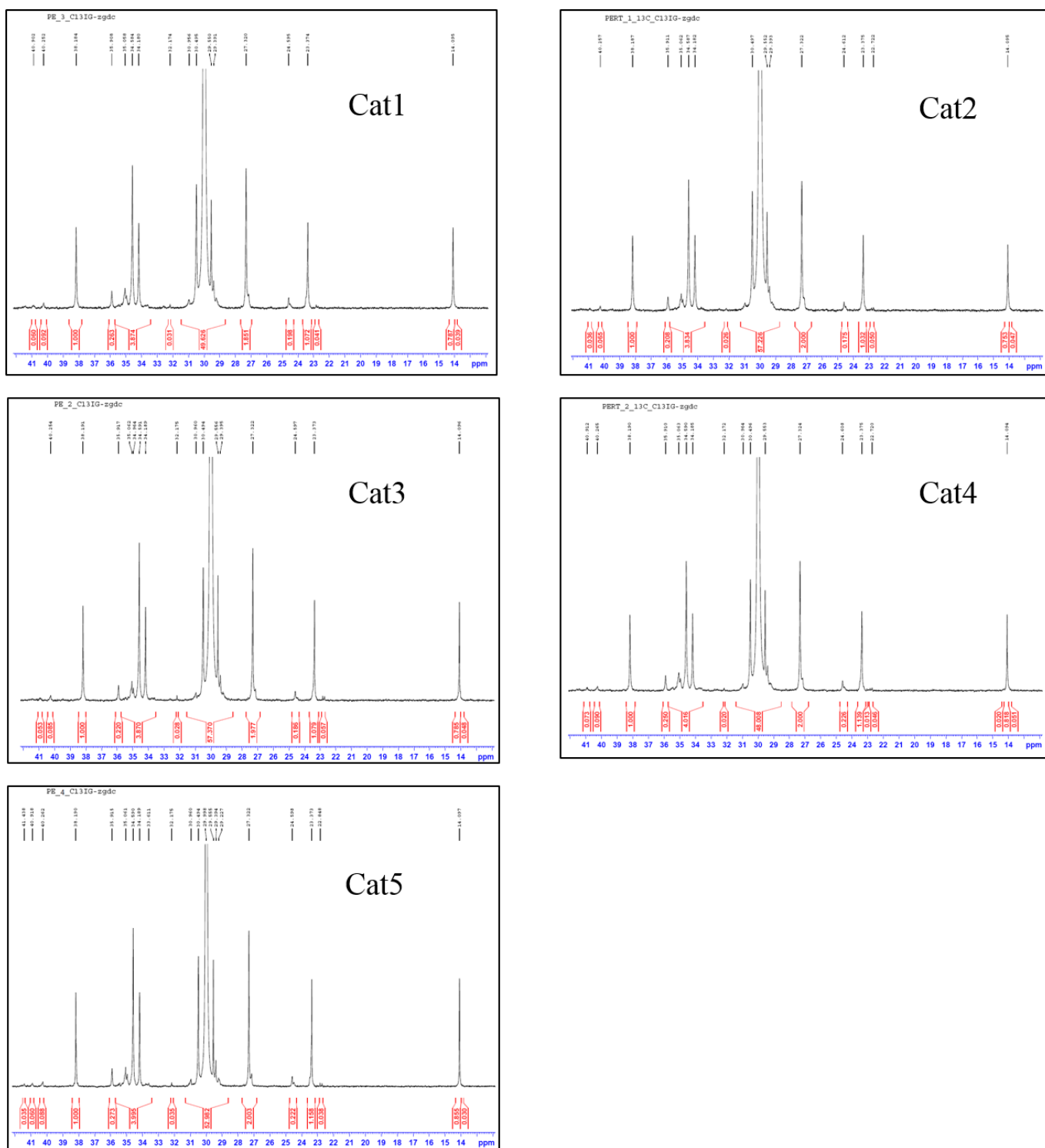
**Figure S3.** GPC curves of copolymers obtained from different catalysts at their optimal Al/Ti molar ratio with different concentration of 1-hexene: Cat1-Cat5 were prepared with Ti/Mg molar ratio 1.50, 1.75, 2.00, 2.25, 2.50, respectively. Polymerization conditions: catalyst 100 mg, ethylene pressure 0.15 MPa, *n*-heptane 80 mL, TIBA, 70 °C, 1 h.

#### 4. Kinetic curves of ethylene/1-hexene copolymerization with different catalysts



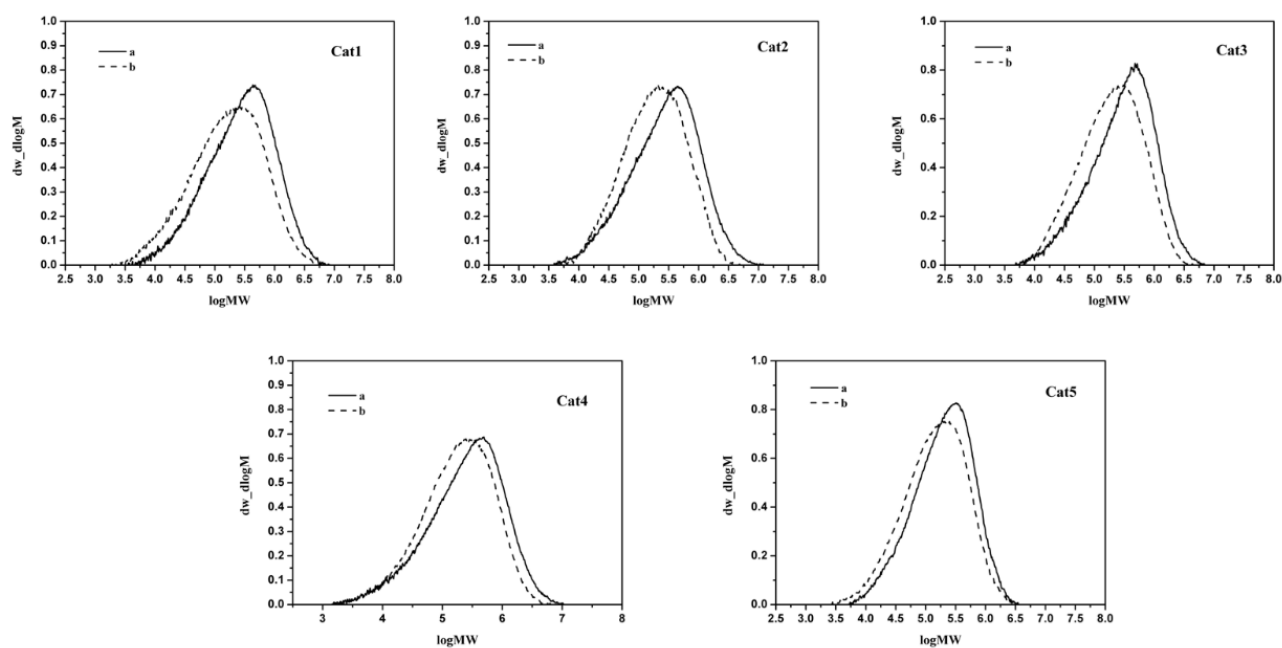
**Figure S4.** Kinetic curves of ethylene/1-hexene copolymerization with the catalysts at their optimal Al/Ti molar ratio with different concentration of 1-hexene: Cat1-Cat5 were prepared with Ti/Mg molar ratio 1.50, 1.75, 2.00, 2.25, 2.50, respectively. Polymerization conditions: catalyst 100 mg, ethylene pressure 0.15 MPa, *n*-heptane 80 mL, TIBA, 70 °C, 1 h.

## 5. HT $^{13}\text{C}$ NMR spectra of the copolymers obtained from different catalysts



**Figure S5.** HT  $^{13}\text{C}$  NMR spectra of the copolymers obtained from different catalysts: Cat1-Cat5 were prepared with Ti/Mg molar ratio 1.50, 1.75, 2.00, 2.25, 2.50, respectively. Polymerization conditions: catalyst 100 mg, ethylene pressure 0.15 MPa, 1-hexene concentration 3 vol%, *n*-heptane 80 mL, TIBA, 70 °C, 1 h.

## 6. GPC curves of hydrogen effect



**Figure S6.** Hydrogen effect on molecular weight of the polymers obtained from different catalysts: a—without  $H_2$ ; b—with  $H_2$ ; Cat1-Cat5 were prepared with Ti/Mg molar ratio 1.50, 1.75, 2.00, 2.25, 2.50, respectively. Polymerization conditions: catalyst 100 mg, ethylene pressure 0.15 MPa, *n*-heptane 80 mL, TIBA, 70 °C, 1 h.