Electronic Supplementary Material (ESI) for Polymer Chemistry.


# Supporting Information

## A synthetic strategy toward isosorbide polycarbonate with high molecular weight: the effect of intermolecular hydrogen bonding between isosorbide and metal chloride

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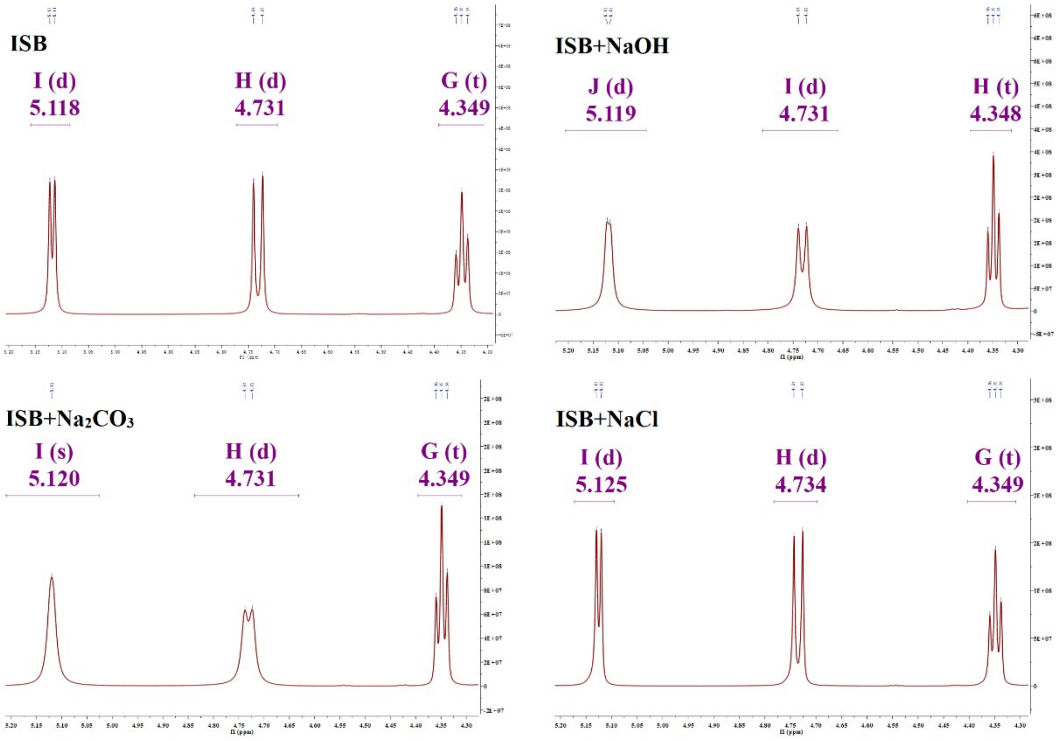


**Figure S1. The detailed $^1$H NMR spectra of ISB and its mixtures with various sodium salts. The result illustrates that only NaCl can form the intermolecular hydrogen bonding with ISB. The little change of position and shape for the hydroxyl groups were observed in the $^1$H NMR because of the coordination effect and the proton exchange when the NaOH and $Na_2CO_3$ were mixed with ISB.**

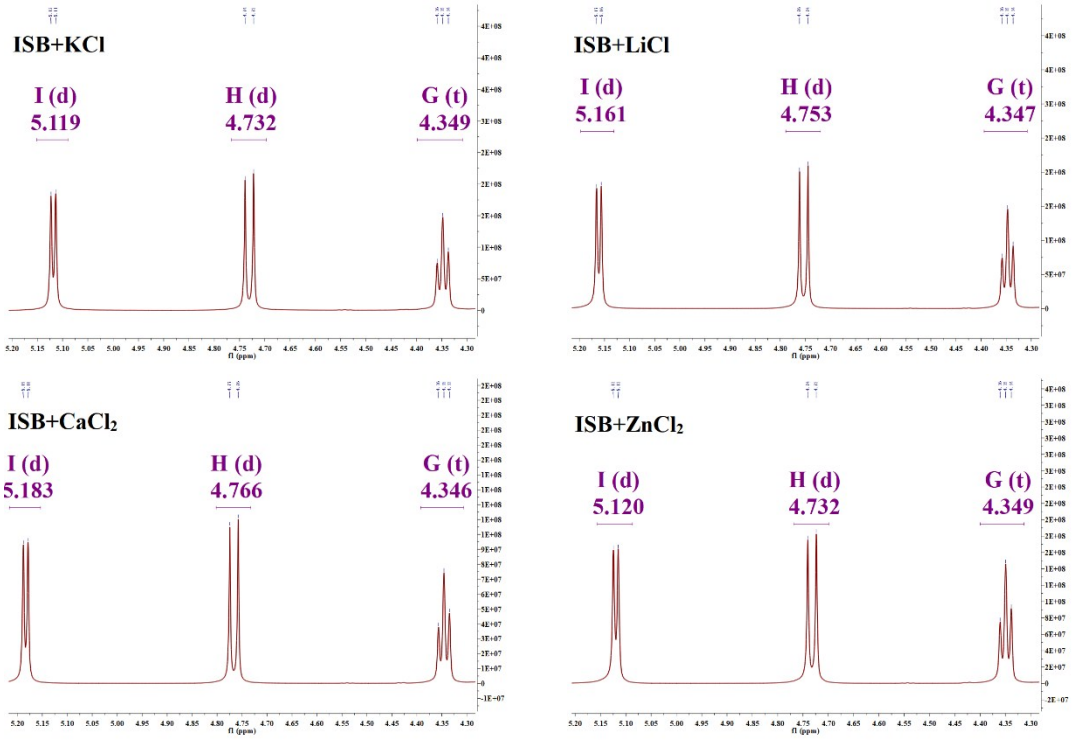


**Figure S2. The detailed $^{1}$H NMR spectra of ISB mixtures with different metal chlorides. The result demonstrated that the metal chloride can form the hydrogen bonding with ISB hydroxyl groups.**

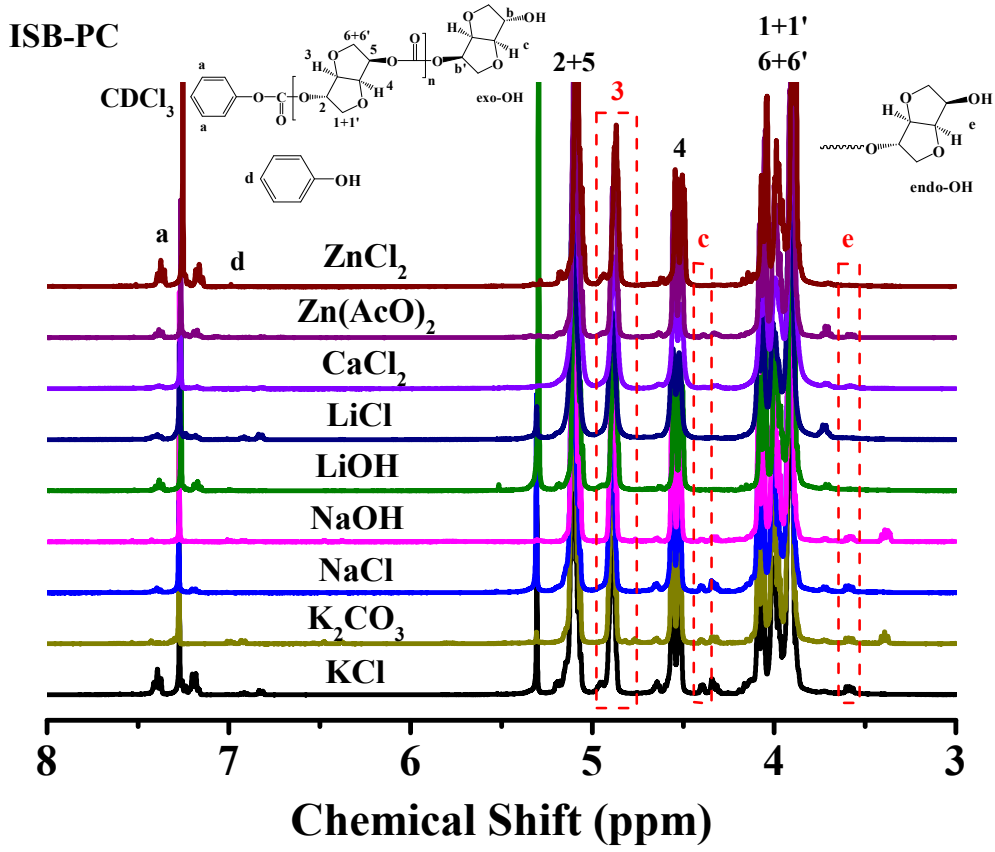


**Figure S3. The $^{1}$H NMR spectra of ISB-PCs catalyzed by various metal salts. The peak integration of 3 signal at δ4.90 ppm in repeating unit is normalized to be 1, and the other peak areas of signals are calculated.**

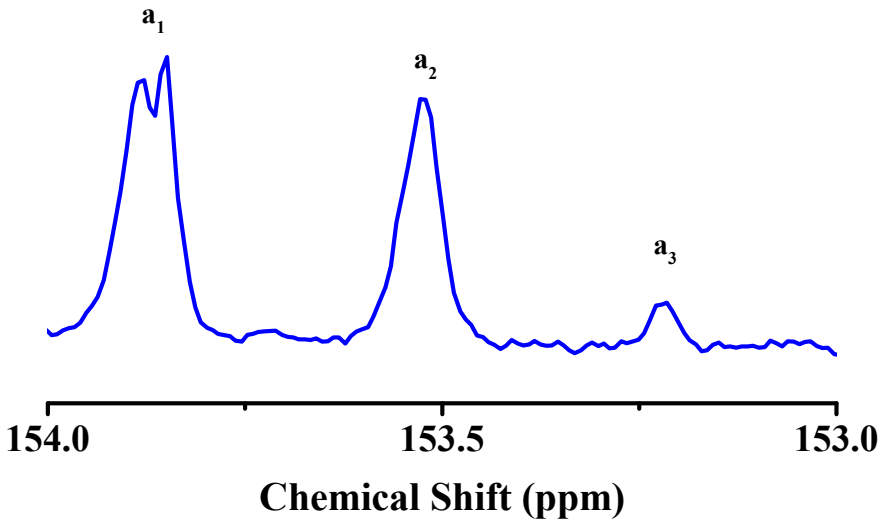


**Figure S4. The $^{13}C$ NMR spectrum of co-polycarbonate catalyzed by NaOH. The feed ratio of isosorbide (containing exo-OH and endo-OH) and isomannide (only containing endo-OH) is 1:1. The result shows that integration ratio of $a_1$, $a_2$ and $a_3$ is approximately 9:6:1, indicating $a_1$ represents endo-endo structure, $a_2$ is endo-exo, and $a_3$ is exo-exo.**

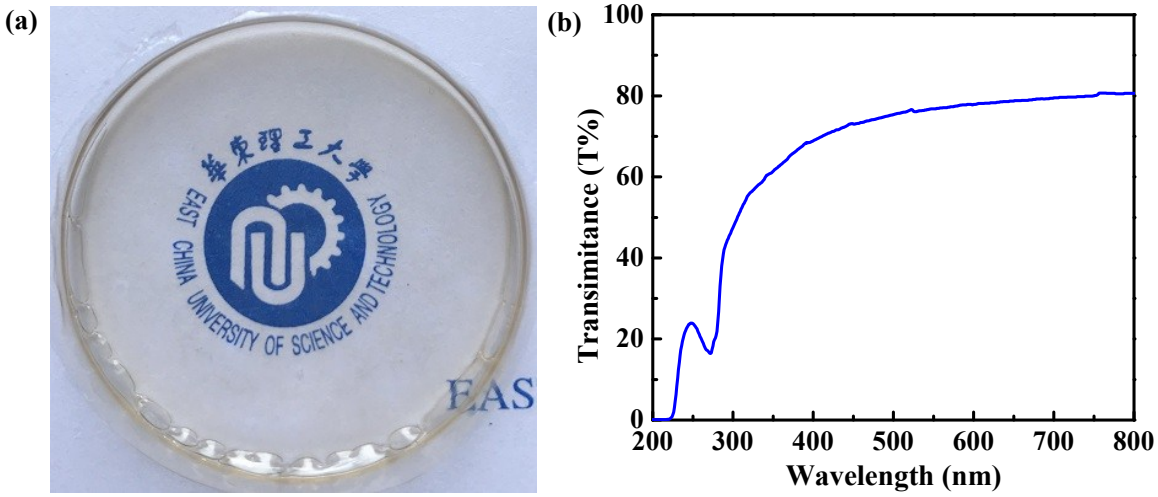


**Figure S5. (a) the ISB-PC robust film obtained by solution casting method; (b) the UV-vis spectrum of the ISB-PC film, and the value of $\Delta C$ calculated using Eq. (3) is 2.58.**