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Controllable Synthesis and AIE Properties of Fluorescent Polyesters

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ABSTRACT: For the potential application of functional polyesters in biomedical field, a series of side-chain functional fluorescent polyesters have been designed and prepared through the polymerization of AIE-functionalized carbonate monomer TPETC. The controllable nature of TPETC's ROP and ROCP using different organocatalysts has been proved. In the dilute solution of these AIE polyesters, the structure of the polymers themselves, concentration of the polymer solution and other external conditions would obviously affect the aggregation of the side groups (TPE derivatives), and thus affecting the AIE phenomenon of the polymers. The structure of polymer chain had certain influences to the distribution and movements of side-groups, and these influences were reflected by the fluorescence intensity here. It is expected that this conclusion would provide a new perspective for the inner characteristics of dilute polymer solutions and broaden the application of AIE macromolecules.

KEYWORDS: Polyester ; AIE ; ROP