

Supporting Information

Sequence-Controlled Radical Polymerization of N-Substituted Maleimides with 1-Methylenebenzocycloalkanes and the Characterization of the Obtained Copolymers with Excellent Thermal Resistance and Transparency

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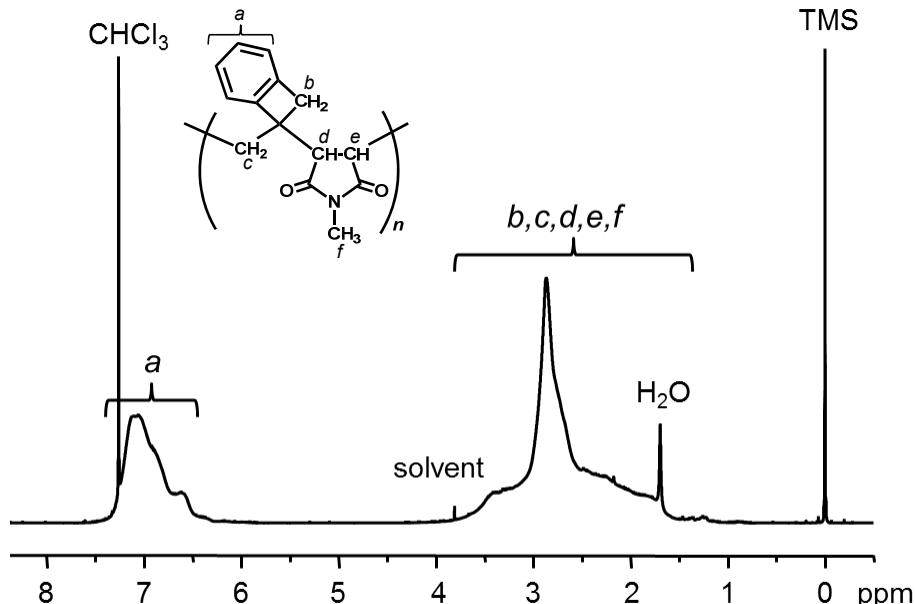


Figure S1. ¹H NMR spectrum of poly(MMI-*alt*-BC4) in CDCl_3 at room temperature.

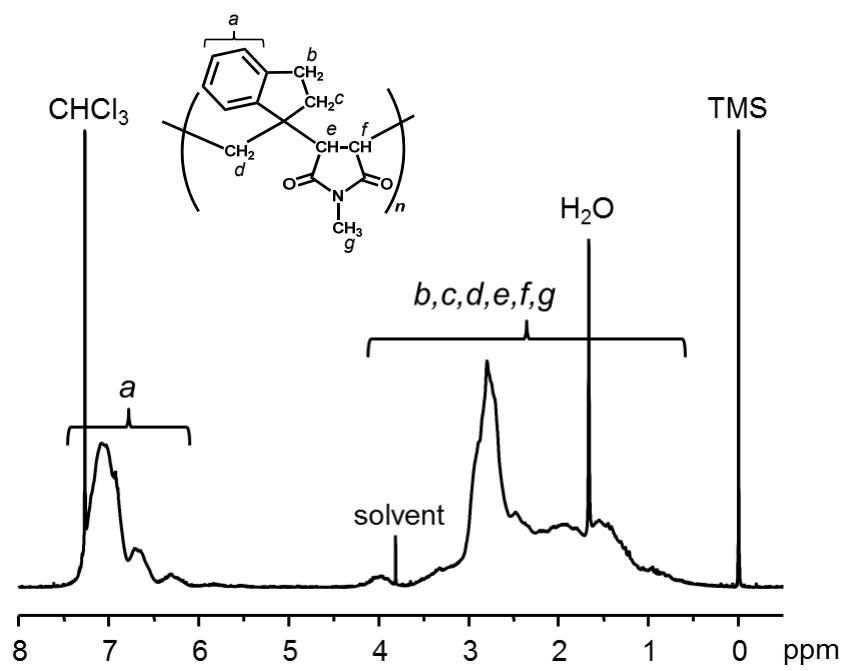


Figure S2. ^1H NMR spectrum of poly(MMI-*alt*-BC5) in CDCl_3 at room temperature.

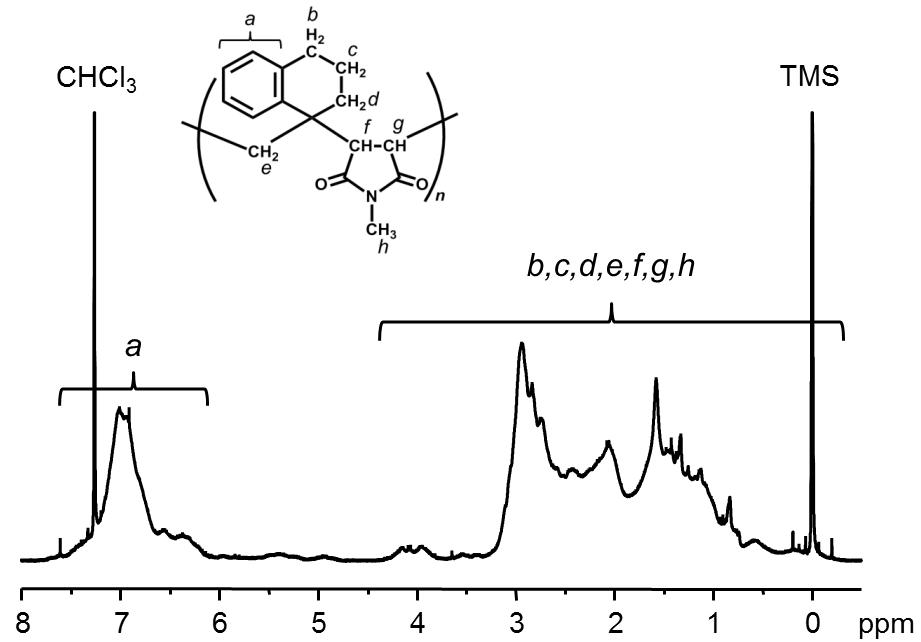


Figure S3. ^1H NMR spectrum of poly(MMI-*alt*-BC6) in CDCl_3 at room temperature.

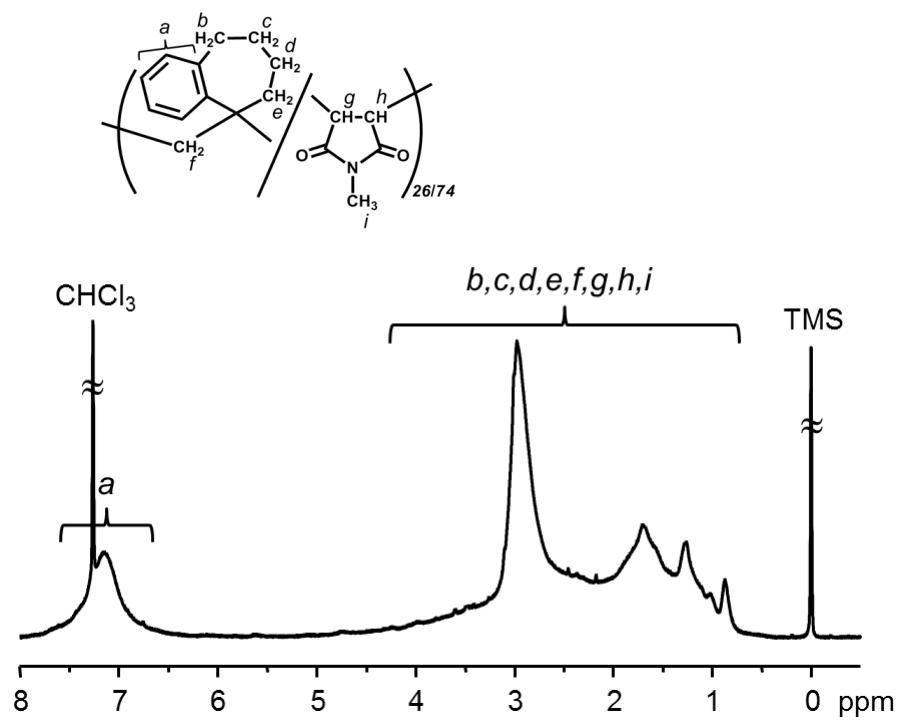


Figure S4. ^1H NMR spectrum of poly(MMI-*co*-BC7) in CDCl_3 at room temperature.

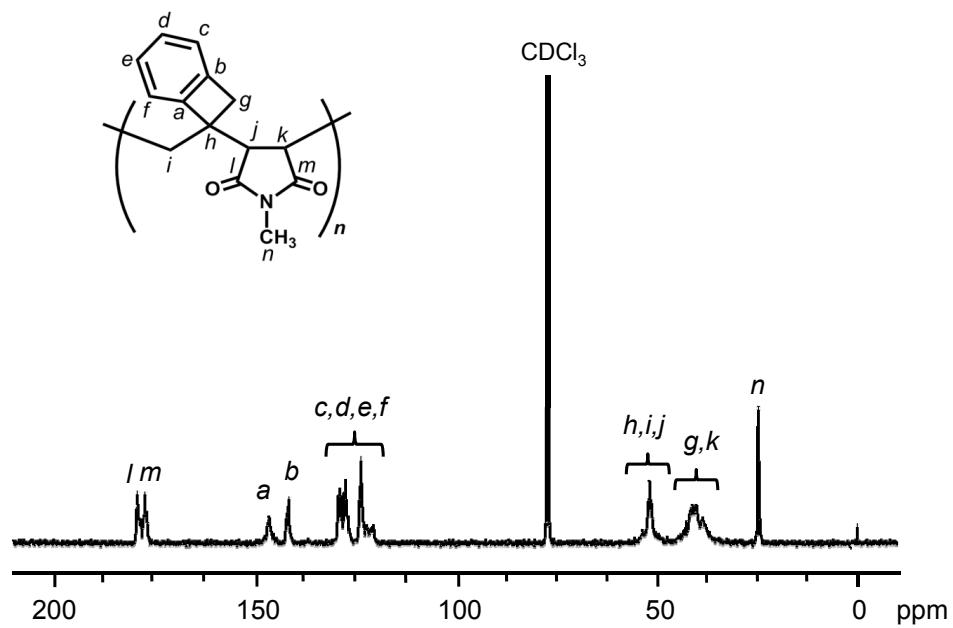


Figure S5. ^1H NMR spectrum of poly(MMI-*alt*-BC4) in CDCl_3 at room temperature.

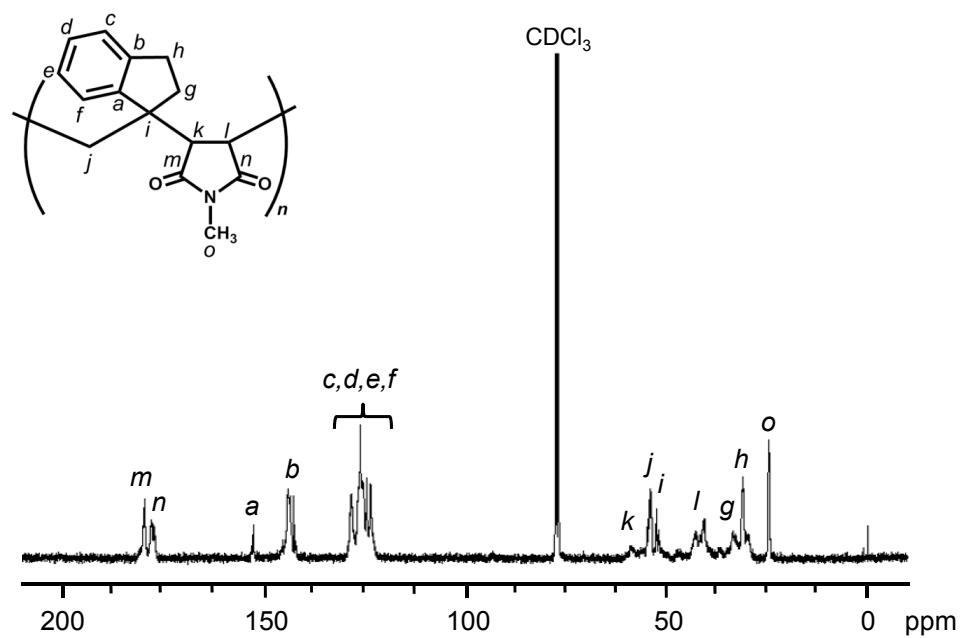


Figure S6. ^1H NMR spectrum of poly(MMI-*alt*-BC5) in CDCl_3 at room temperature.

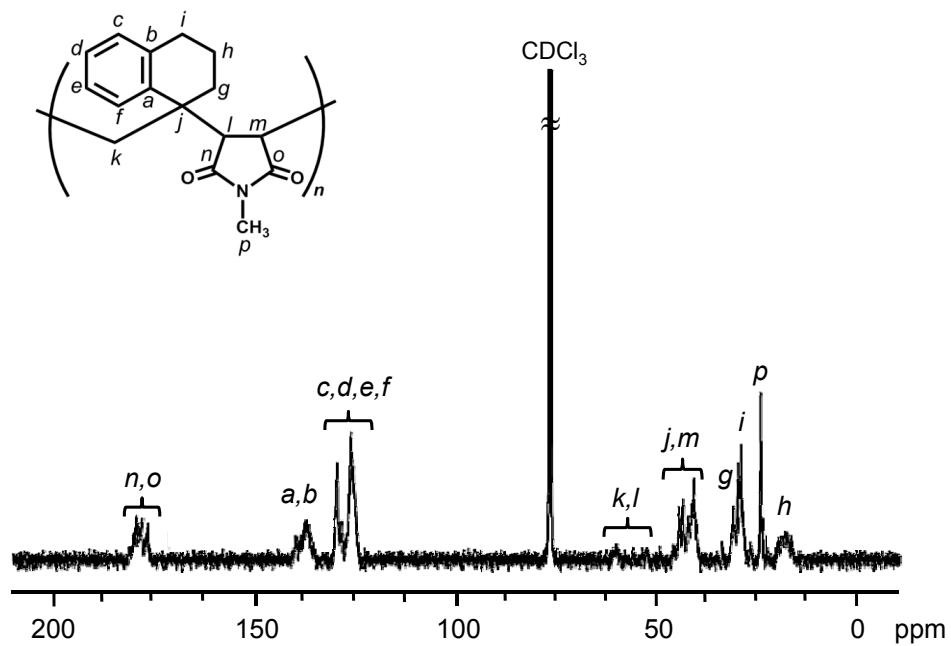


Figure S7. ^1H NMR spectrum of poly(MMI-*alt*-BC6) in CDCl_3 at room temperature.

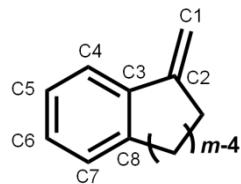
Table S1. Determination of monomer reactivity ratios for the radical copolymerization of BMI (M_2) with the BCms (M_1) in 1,2-dichloroethane at 60 °C using various methods

BCm	method		r_1	r_2	r_{11}	r_{12}	r_{21}	r_{22}
BC5	nonlinear least-squares curve fitting		0.046	0.0043				
	Fineman-Ross		0.047	0.0008				
	Kelen-Tüdös		0.041	0.0041				
BC6	nonlinear least-squares curve fitting		0.019	0.047				
	Fineman-Ross		0.016	0.048				
	Kelen-Tüdös		~0	0.056				
BC7	nonlinear least-squares curve fitting				0	2.92	0	0.252
	Fineman-Ross				0	1.62	0	0.307
	Kelen-Tüdös				0	3.45	0	0.178

Table S2. Mulliken atomic charges on the carbon atoms of the BCms^a

BCm	C1	C2	C3	C4	C5	C6	C7	C8
BC5	-0.433	0.150	0.108	-0.187	-0.134	-0.128	-0.187	0.107
BC6	-0.433	0.184	0.088	-0.188	-0.134	-0.122	-0.193	0.118
BC7	-0.385	0.113	0.055	-0.164	-0.130	-0.117	-0.199	0.143

^aCalculated by the DFT method at the B3LYP/6-31G*/B3LYP/6-31G* levels of theory.



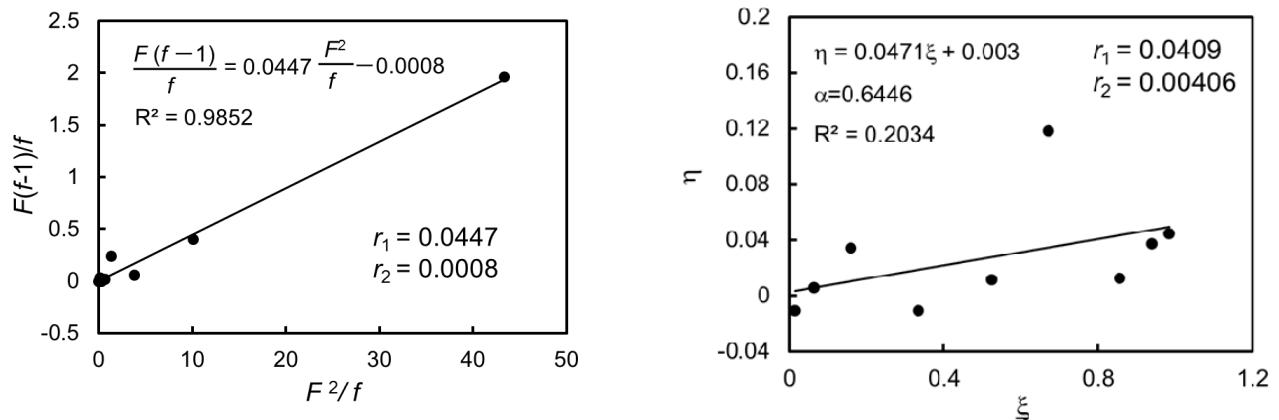


Figure S8. Kelen-Tüdös and Fineman-Ross plots for the BMI–BC5 copolymerization.

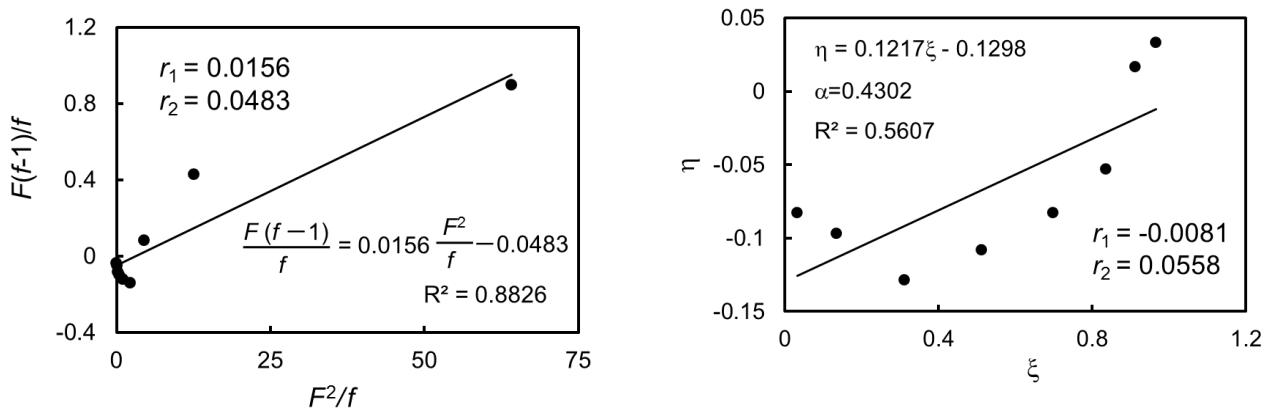


Figure S9. Kelen-Tüdös and Fineman-Ross plots for the BMI–BC6 copolymerization.

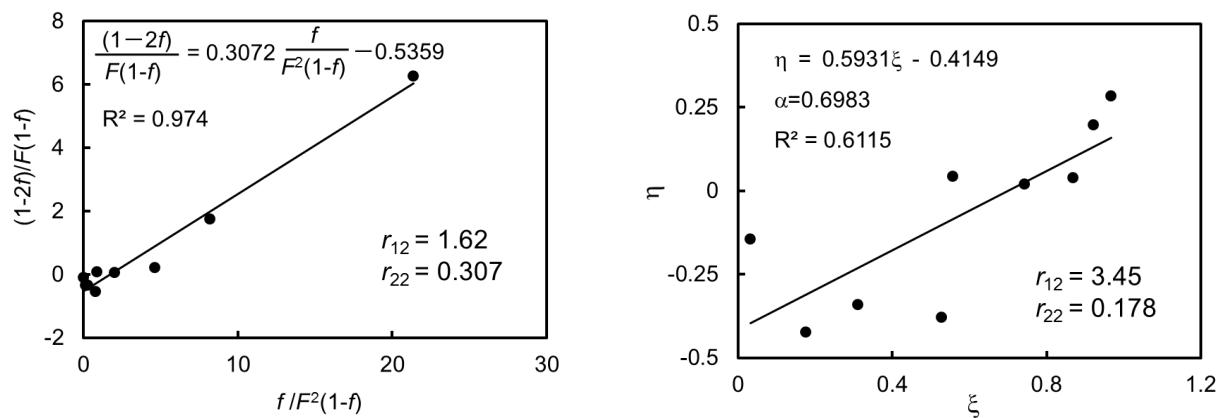


Figure S10. Kelen-Tüdös and Fineman-Ross plots for the BMI–BC7 copolymerization.

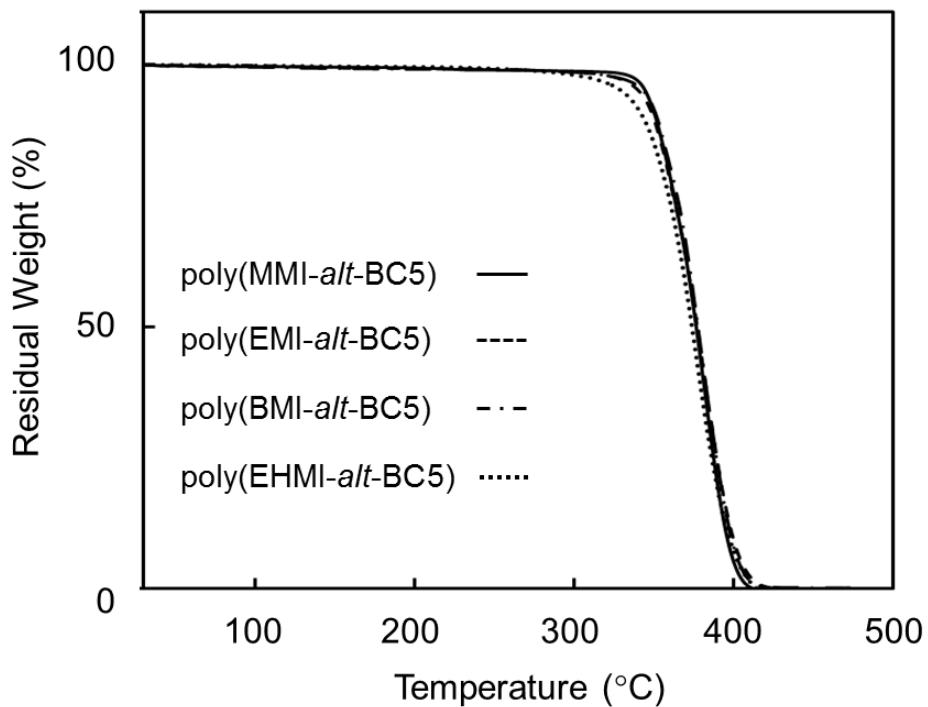


Figure S11. TG curves of poly(RMI-*alt*-BC5) in a nitrogen stream at the heating rate of 10 °C/min. poly(MMI-*alt*-BC5) (—), poly(EMI-*alt*-BC5) (---), poly(BMI-*alt*-BC5) (- · - · -), and poly(EHMI-*alt*-BC5) (·····).

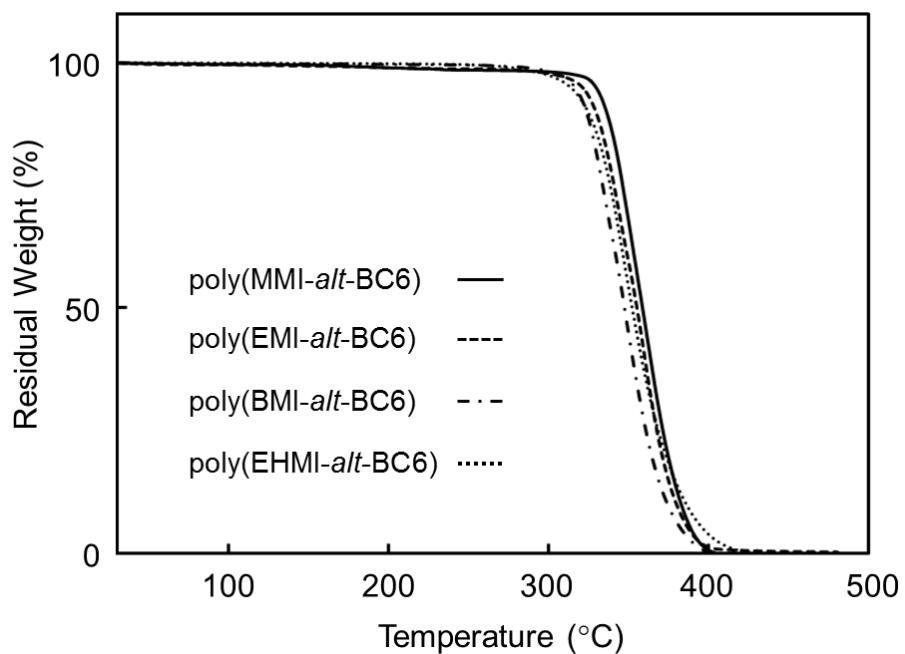


Figure S12. TG curves of poly(RMI-*alt*-BC6) in a nitrogen stream at the heating rate of 10 °C/min. poly(MMI-*alt*-BC6) (—), poly(EMI-*alt*-BC6) (---), poly(BMI-*alt*-BC6) (- · - · -), and poly(EHMI-*alt*-BC6) (·····).

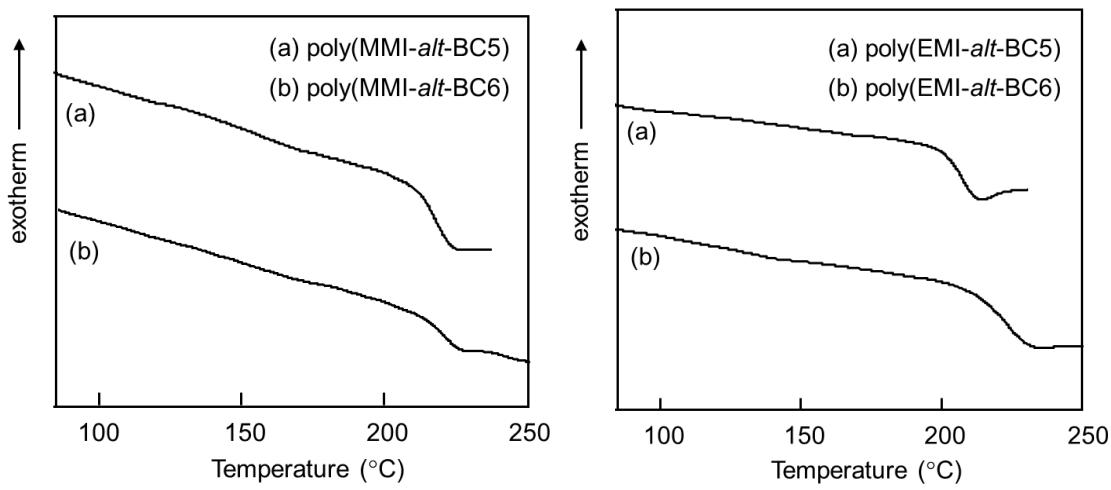


Figure S13. DSC curves of poly(MMI-*alt*-BC5), poly(MMI-*alt*-BC6), poly(EMI-*alt*-BC5), and poly(EMI-*alt*-BC6) in a nitrogen stream at the heating and cooling rates of 10 °C/min.

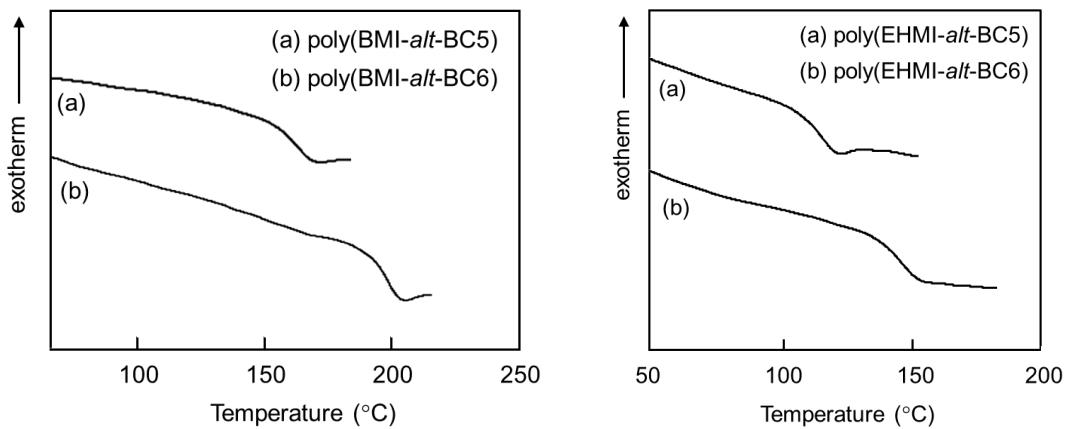


Figure S14. DSC curves of poly(BMI-*alt*-BC5), poly(BMI-*alt*-BC6), poly(EHMI-*alt*-BC5), and poly(EHMI-*alt*-BC6) in a nitrogen stream at the heating and cooling rates of 10 °C/min.