Supporting information

Bio-based high-latent-efficiency cross-linking accelerator with steric-hindrance and salt-formation effects

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Content

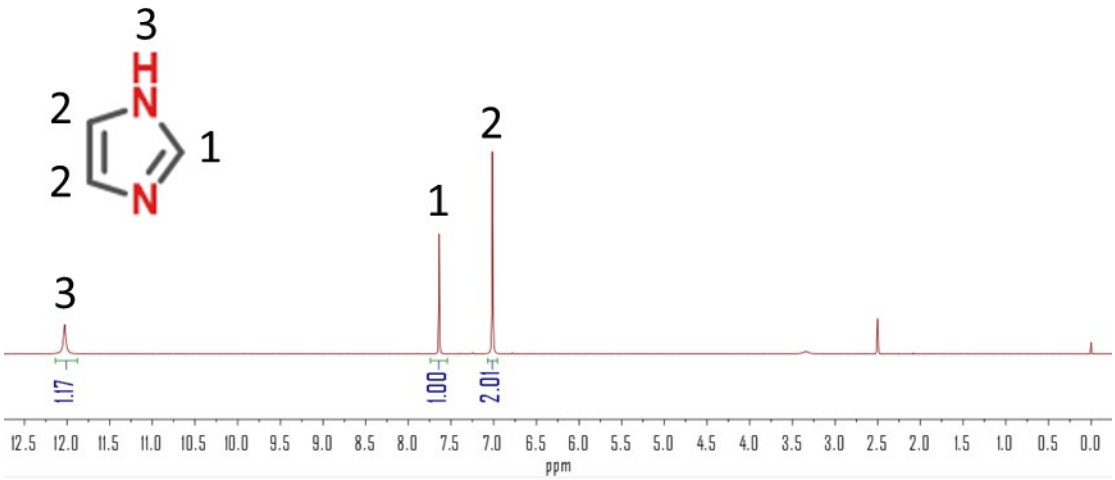

Fig. S1 ^{1}H NMR spectrum of IM.

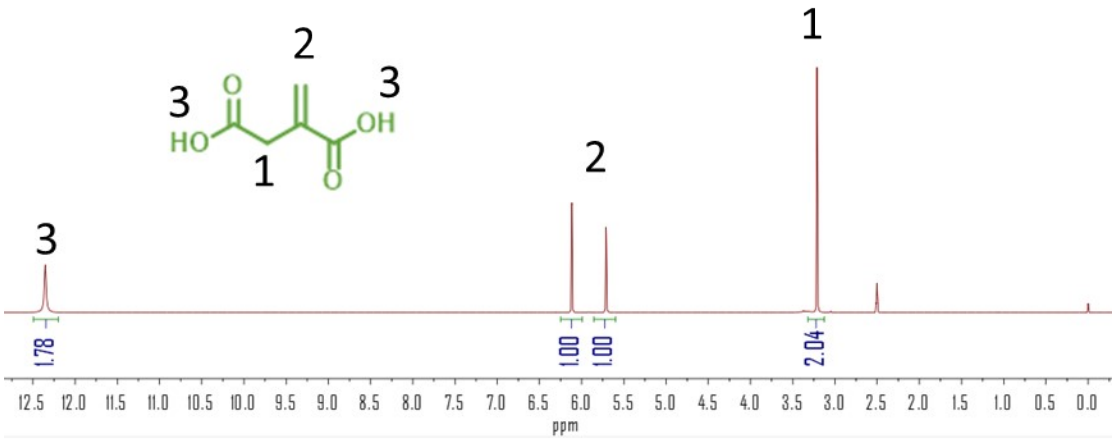

Fig. S2 ^{1}H NMR spectrum of IA.

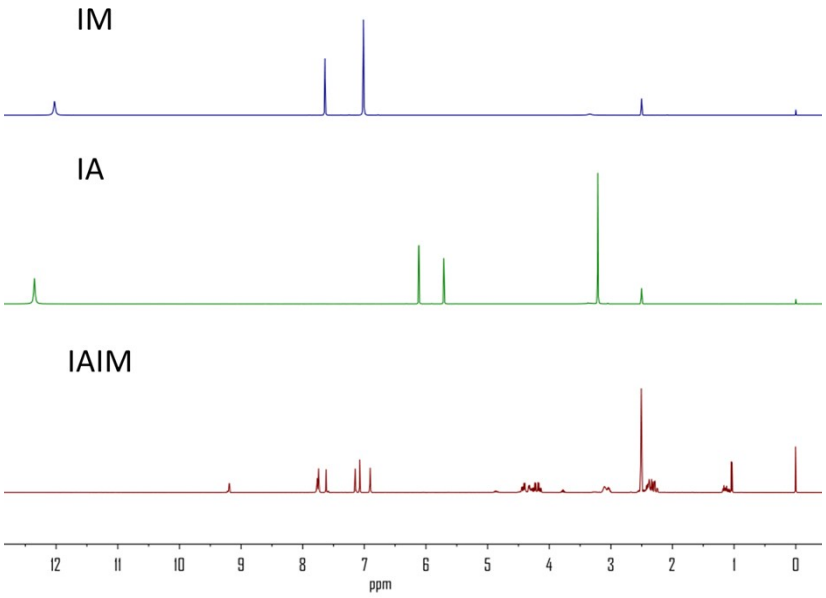

Fig. S3 ^{1}H NMR spectra of IM, IA and IAIM.

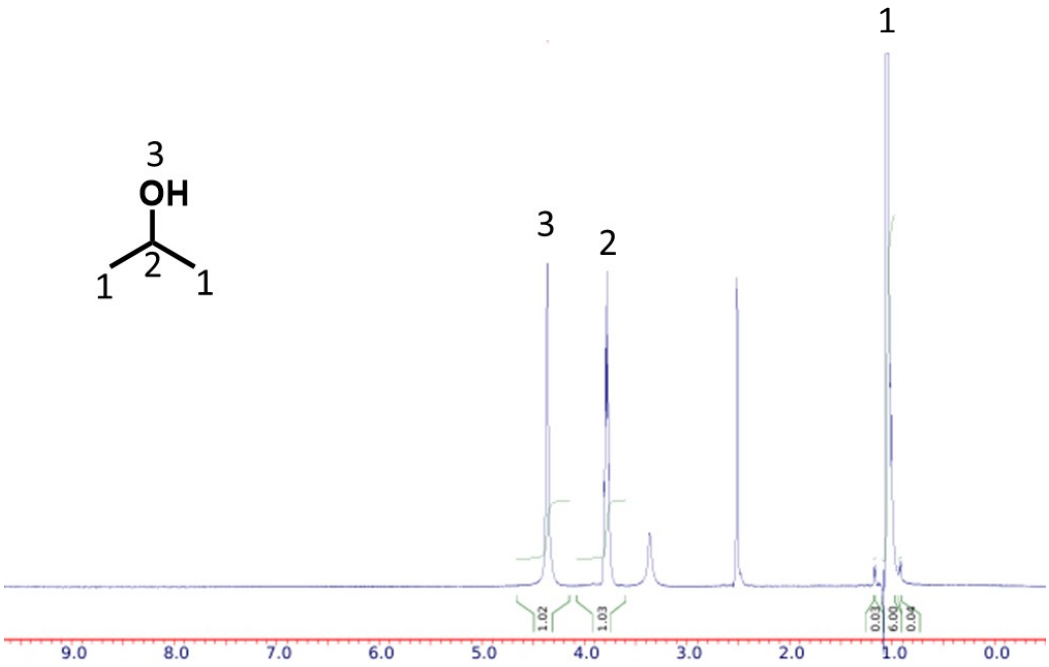

Fig. S4 ^{1}H NMR spectrum of isopropanol. (Spectral data were obtained from Enamine Ltd.)

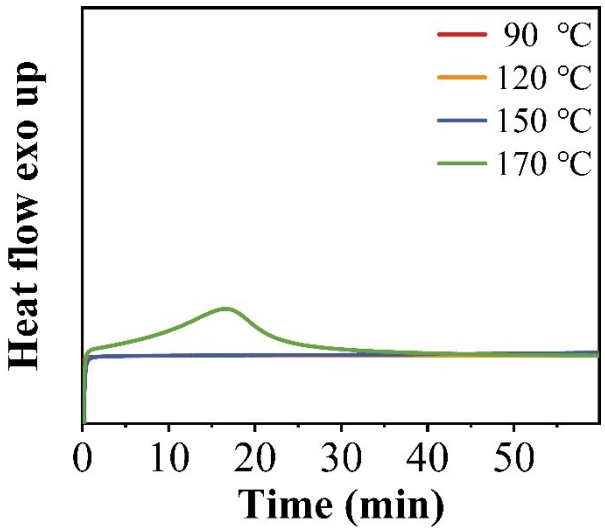

Fig. S5 Isothermal DSC curves of E-D system at different temperatures.

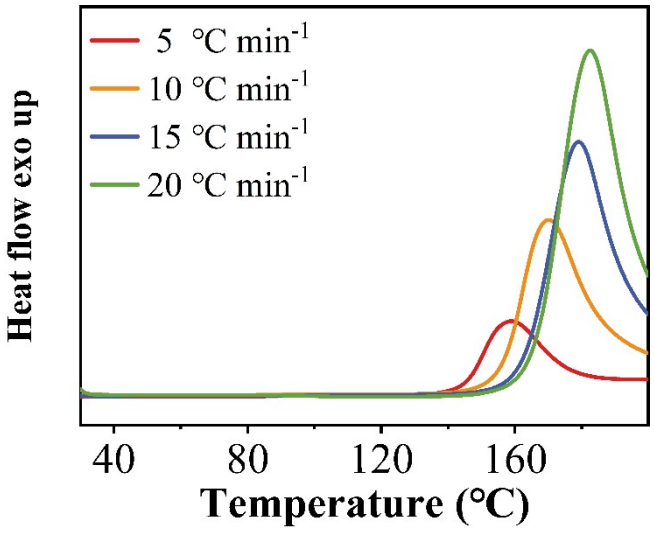

Fig. S6 Non-isothermal DSC curves of E-D-IAIM$_2$ system at different heating rates.

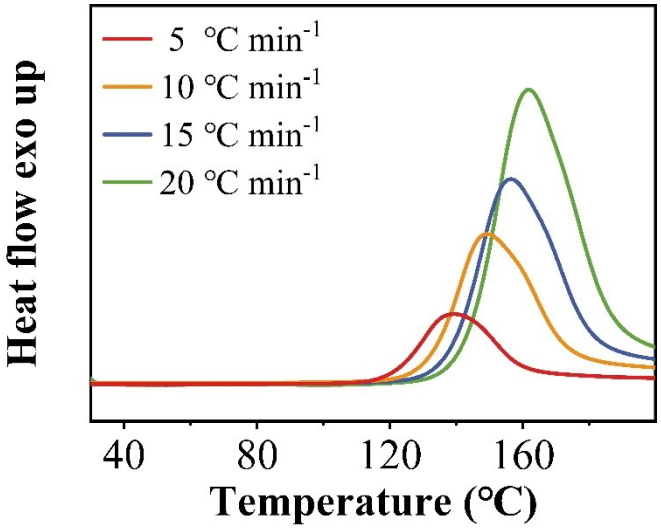

Fig. S7 Non-isothermal DSC curves of E-D-DMIIM$_2$ system at different heating rates.

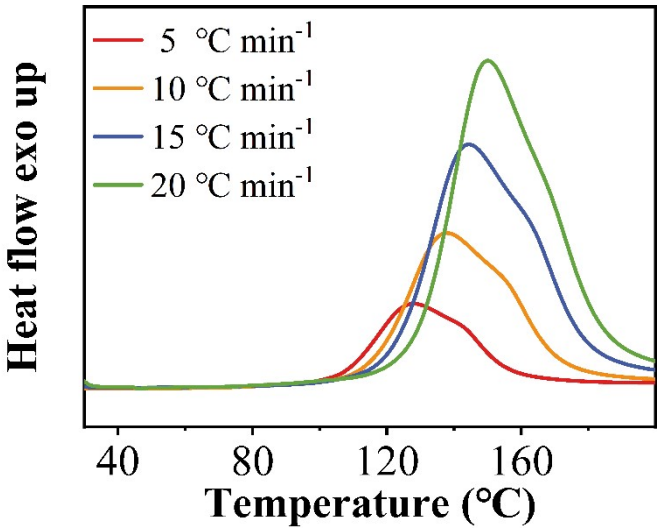

Fig. S8 Non-isothermal DSC curves of E-D-IM_1 system at different heating rates.

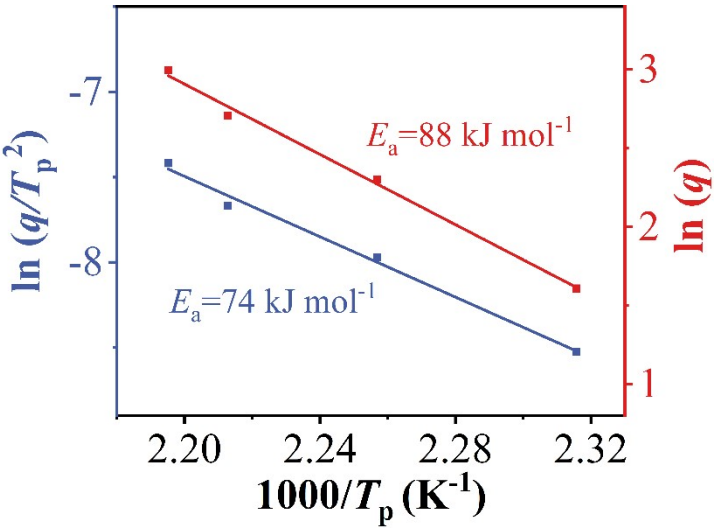

Fig. S9 Activation energy of the curing reaction of E-D-$IAIM_2$ system.

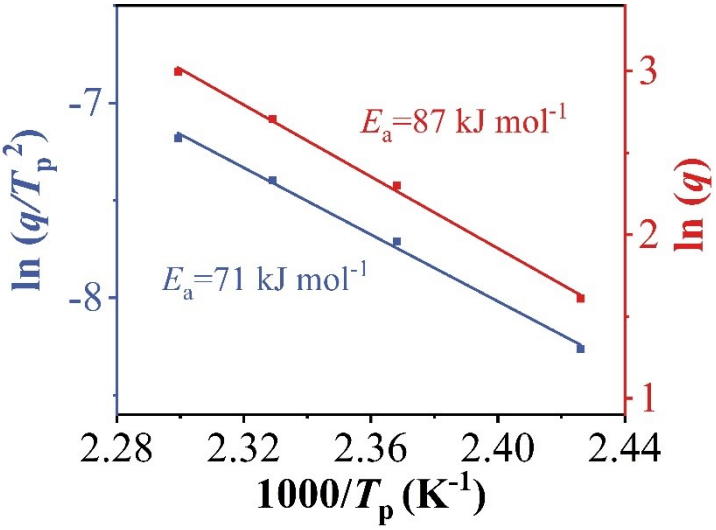

Fig. S10 Activation energy of the curing reaction of E-D-DMIIM$_2$ system.

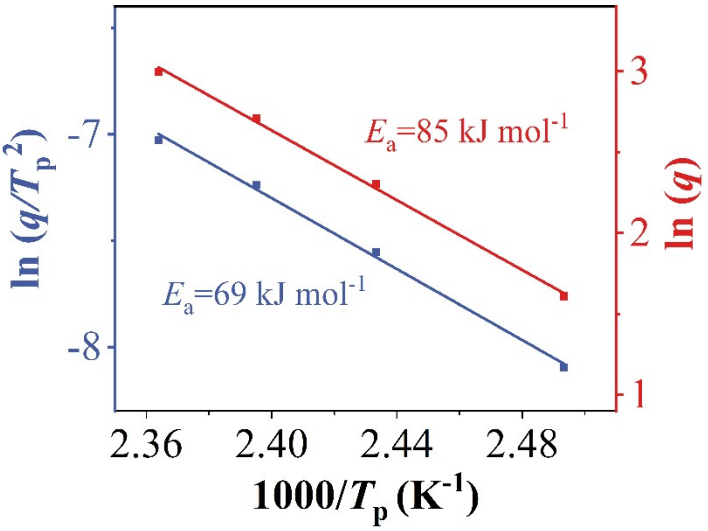

Fig. S11 Activation energy of the curing reaction of E-D-IM$_1$ system.

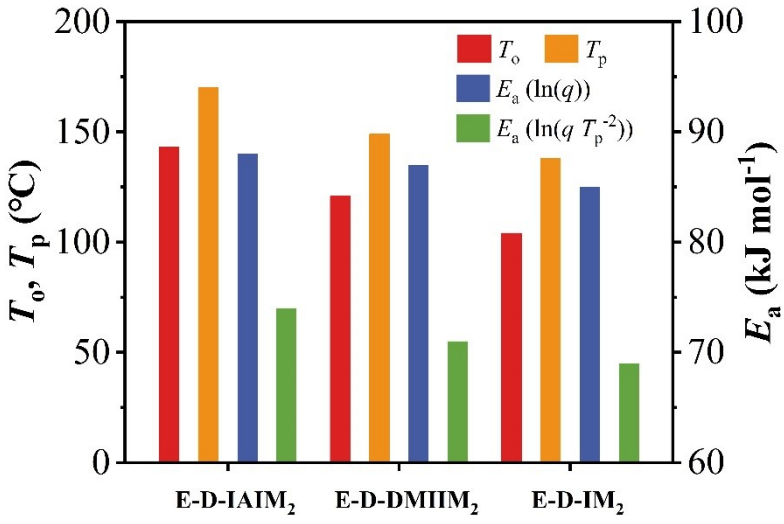

Fig. S12 Histogram of curing kinetics parameters E_a, T_o and T_p for E-D-IAIM$_2$, E-D-DMIIM$_2$ and E-D-IM$_1$ systems.

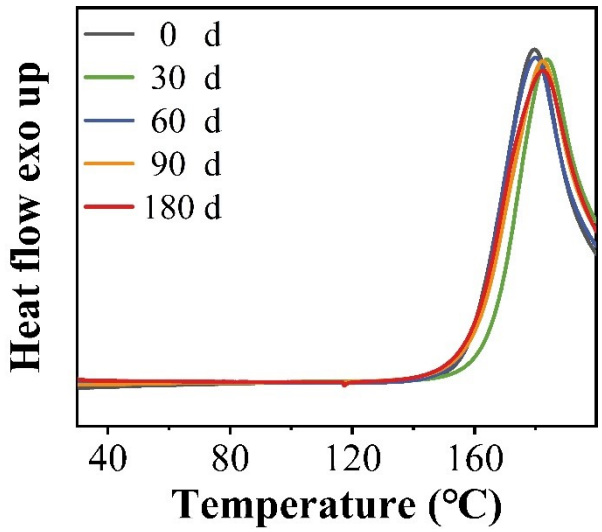

Fig. S13 Non-isothermal DSC curves of E-D-IAIM$_1$ system after different storage times.

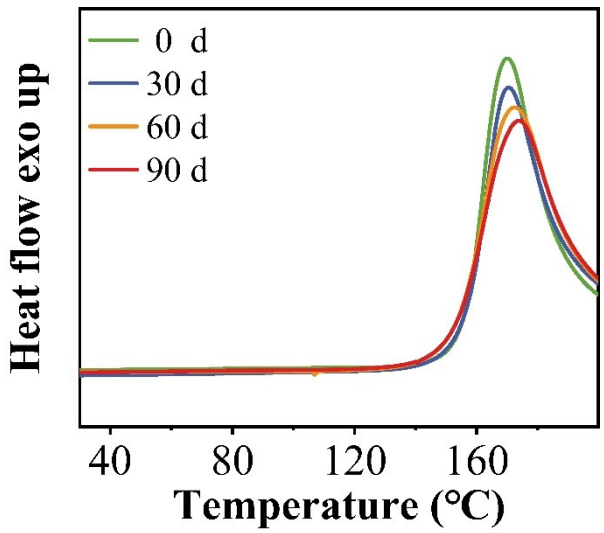

Fig. S14 Non-isothermal DSC curves of E-D-IAIM$_2$ system after different storage times.

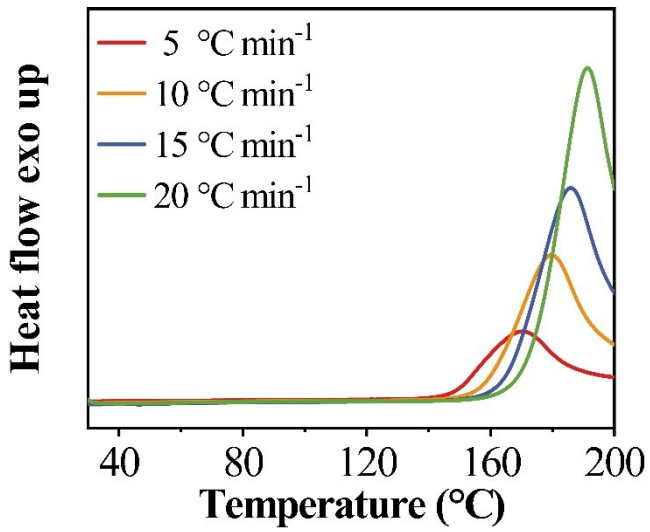

Fig. S15 Non-isothermal DSC curves of E-D-IAIM$_1$ system at different heating rates.

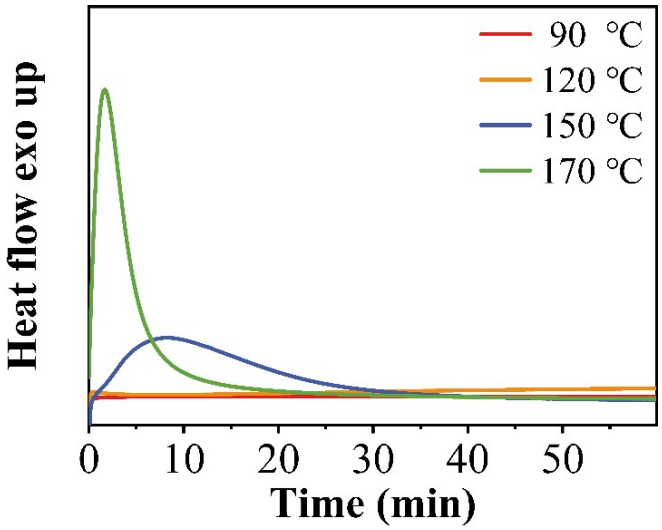

Fig. S16 Isothermal DSC curves of E-D-IAIM$_1$ system at different temperatures.

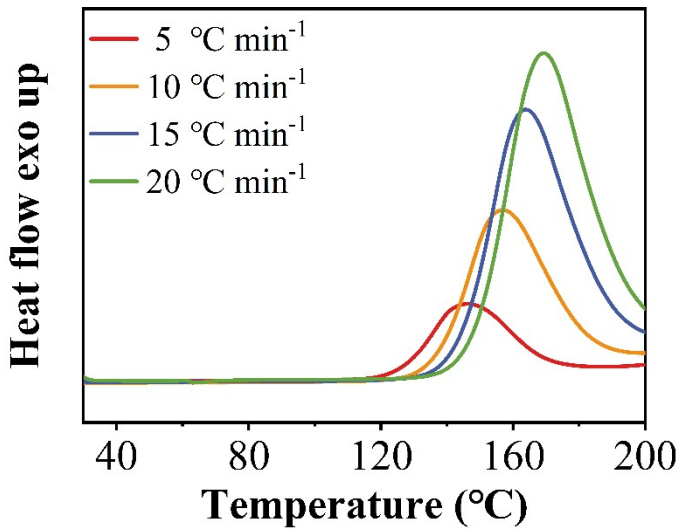

Fig. S17 Non-isothermal DSC curves of E-D-DMIIM$_1$ system at different heating rates.

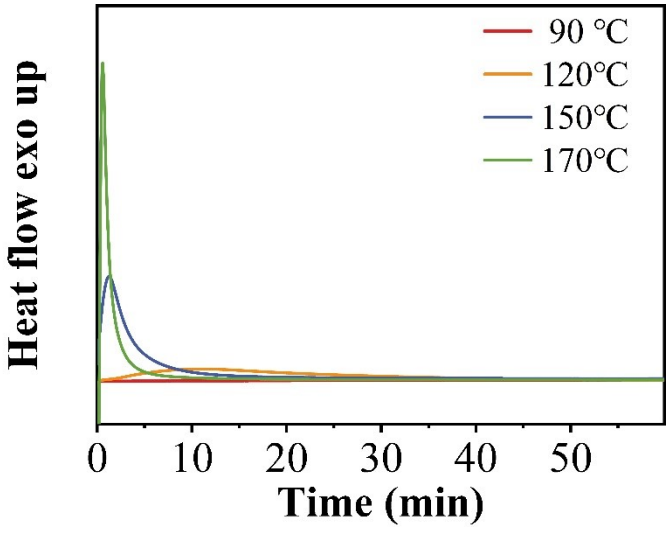

Fig. S18 Isothermal DSC curves of E-D-DMIIM$_1$ system at different temperatures.

Table S1. Curing kinetics parameters E_a, T_o and T_p of E-D-IAIM$_2$, E-D-DMIIM$_2$ and E-D-IM$_1$ systems.

Sample	T_o (℃)				T_p (℃)				E_a (kJ mol^{-1})	
	5	10	15	20	5	10	15	20	Kissinger	Ozawa
	℃ min^{-1}				℃ min^{-1}					
E-D-IAIM$_2$	137	143	147	150	159	170	179	183	88	74
E-D-DMIIM$_2$	114	121	127	129	139	149	156	162	87	71
E-D-IM$_2$	98	104	105	111	128	138	145	150	85	69

Table S2. Tensile test results of the cured epoxy resins.

Sample	Tensile strength （MPa）	Young's modulus (GPa)	Elongation at break (%)
E-D-IAIM$_1$	60±4.7	1.58±0.12	5.9±0.5
E-D-IAIM$_2$	52±1.3	1.47±0.10	5.7±0.6
E-D-DMIIM$_1$	63±4.1	1.62±0.15	7.7±1.6
E-D-DMIIM$_2$	64±2.6	1.55±0.10	8.0±1.4
E-D-IM$_1$	65±2.0	1.52±0.06	7.8±0.7

E-D-IM_2	64±4.2	1.55±0.19	9.6±0.2