

Study on the Thermal Properties and Enzymatic Degradability of Chiral Polyamide-Imides Films Based on Amino Acids

Weipeng Liu, Fuyan He, Wenke Yang, Zhizhou Yang, Jinshui Yao and Hui Zhao

Table S1. Yields and physical properties of the diacid monomers(2a-2f).

Diacids (M)	Yield (%)	$[\alpha]_D^{25}$	Formula (Mw)	Elemental analysis (%)			
				C	H	N	
2a	95	-60.53	C ₁₆ H ₁₂ N ₂ O ₈	Calcd	53.34	3.36	7.78
			(360.28)	Found	53.32	3.16	7.70
2b	94		C ₁₄ H ₈ N ₂ O ₈	Calcd	50.61	2.42	8.43
			(308.13)	Found	50.64	2.47	8.20
2c	95	-51.95	C ₂₀ H ₂₀ N ₂ O ₈	Calcd	57.69	4.84	6.73
			(416.21)	Found	57.58	4.90	6.62
2d	93	-65.32	C ₂₂ H ₂₄ N ₂ O ₈	Calcd	59.46	5.41	6.31
			(444.23)	Found	59.52	5.42	6.55
2e	92	-53.52	C ₂₀ H ₂₀ N ₂ O ₈	Calcd	57.69	4.84	6.73
			(416.21)	Found	57.52	4.95	6.64
2f	92	65.85	C ₁₆ H ₁₂ N ₂ O ₈	Calcd	53.34	3.36	7.78
			(360.28)	Found	53.42	3.56	7.55

Table S2. Yields and physical properties of PAI3a-PAI3f. .

Polymers (P)	Yield (%)	M _w ×10 ⁴ (g/mol)	[α] _D ²⁵	Formula (Mw)	Elemental analysis (%)			
					C	H	N	
PAI3a	92	5.030	-32.43	(C ₂₈ H ₂₀ N ₄ O ₇) _n	Calcd	64.12	3.84	10.68
				(524.48) _n	Found	64.17	3.81	10.61
PAI3b	91	7.903		(C ₂₆ H ₁₆ N ₄ O ₇) _n	Calcd	68.28	3.93	10.93
				(510.47) _n	Found	68.31	3.90	10.92
PAI3c	91	2.967	-30.79	(C ₃₂ H ₂₈ N ₄ O ₇) _n	Calcd	66.20	4.86	9.65
				(580.33) _n	Found	66.20	4.87	9.66
PAI3d	90	2.685	-37.87	(C ₃₄ H ₃₂ N ₄ O ₇) _n	Calcd	66.87	5.61	9.17
				(608.35) _n	Found	66.84	5.66	9.09
PAI3e	93	3.091	-15.8	(C ₃₂ H ₂₈ N ₄ O ₇) _n	Calcd	66.20	4.86	9.65
				(580.33) _n	Found	66.21	4.84	9.68
PAI3f	92	3.156	36.41	(C ₂₈ H ₂₀ N ₄ O ₇) _n	Calcd	64.12	3.84	10.68
				(524.48) _n	Found	64.22	3.74	10.73

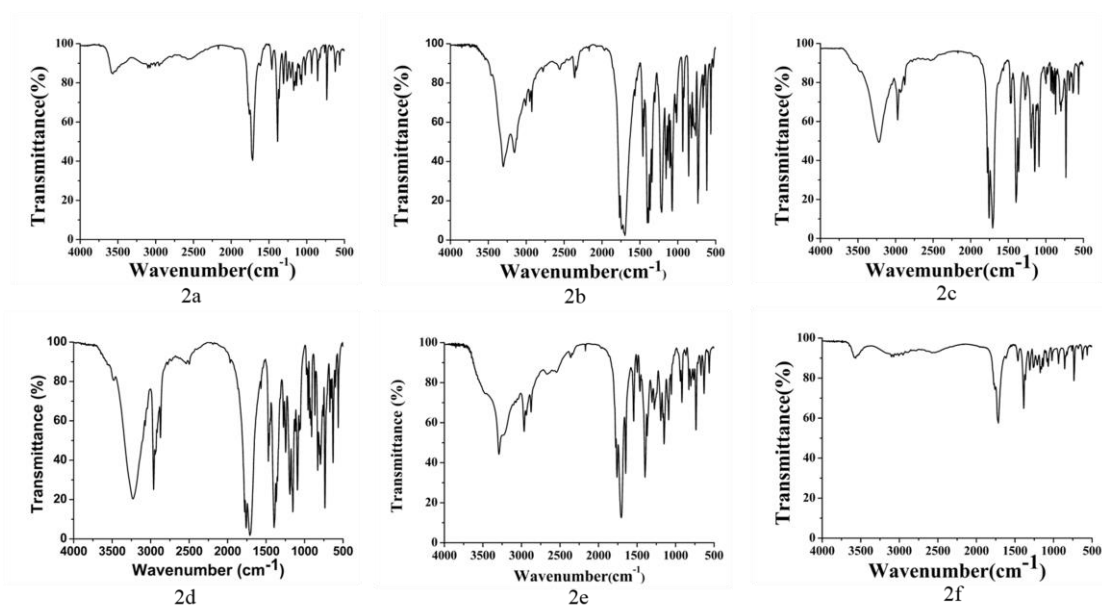


Figure S1. FTIR spectra of the diacid monomers(2a-2f).

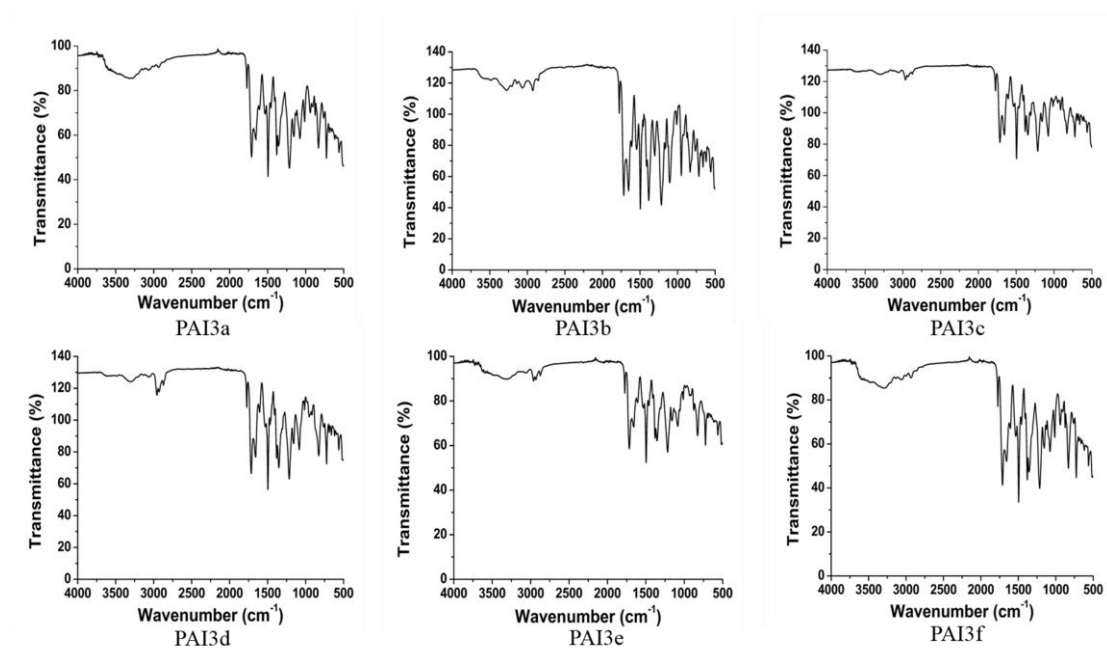


Figure S2. FTIR spectra of the PAI3a-PAI3f.

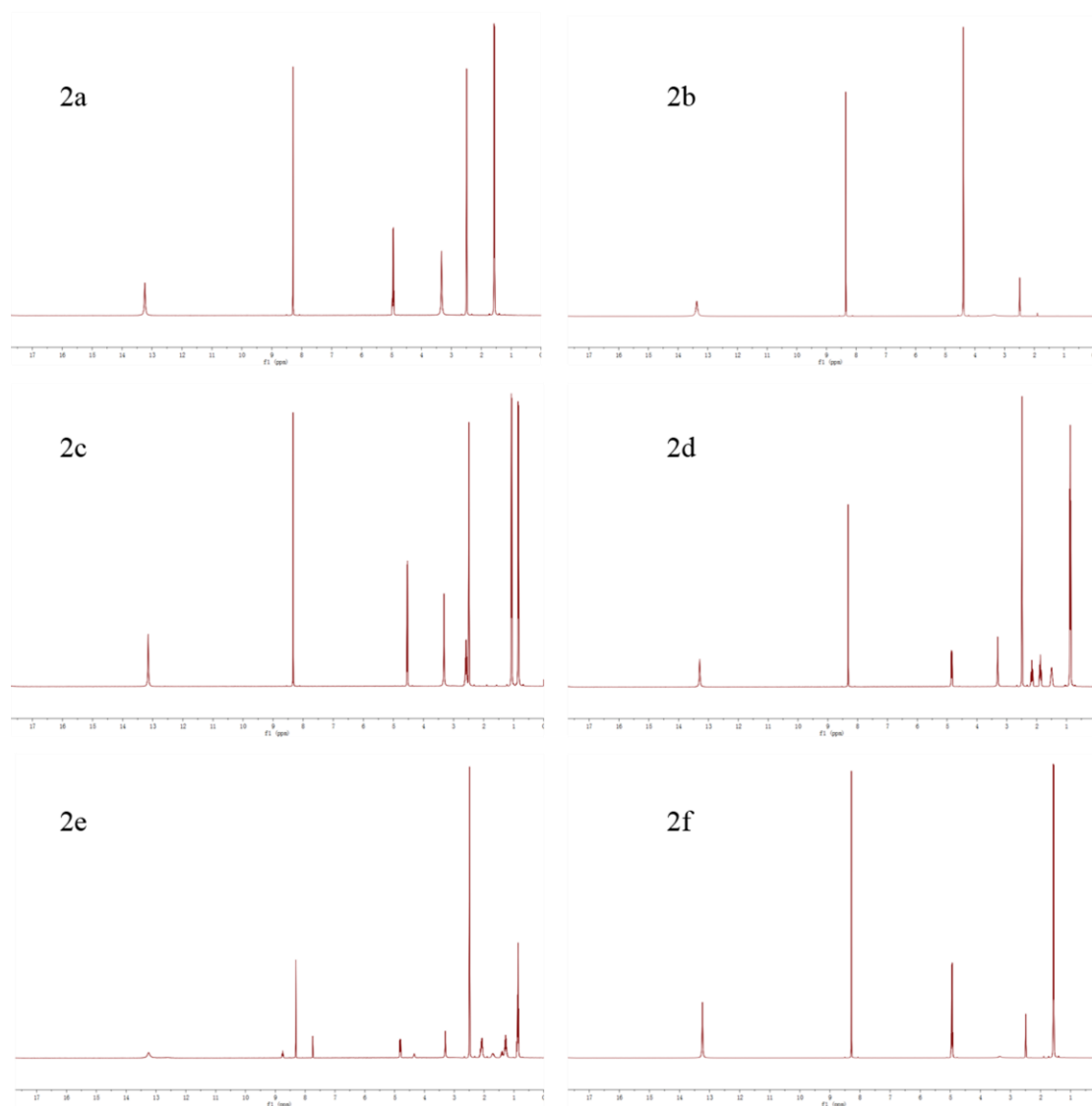


Figure S3. Representative ^1H NMR spectrum of the diacid monomers(2a-2f).

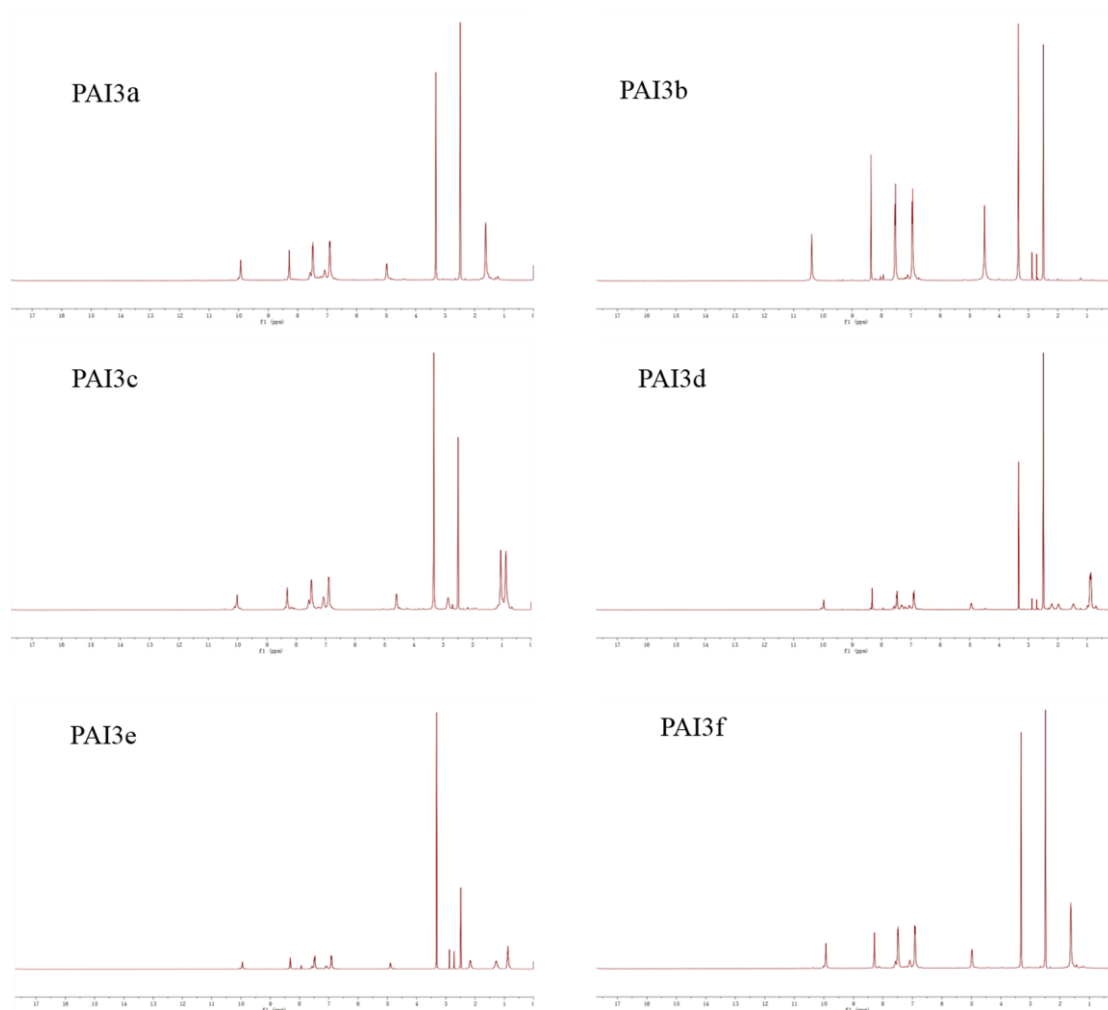


Figure S4. Representative ^1H NMR spectrum of the PAI3a-PAI3f.

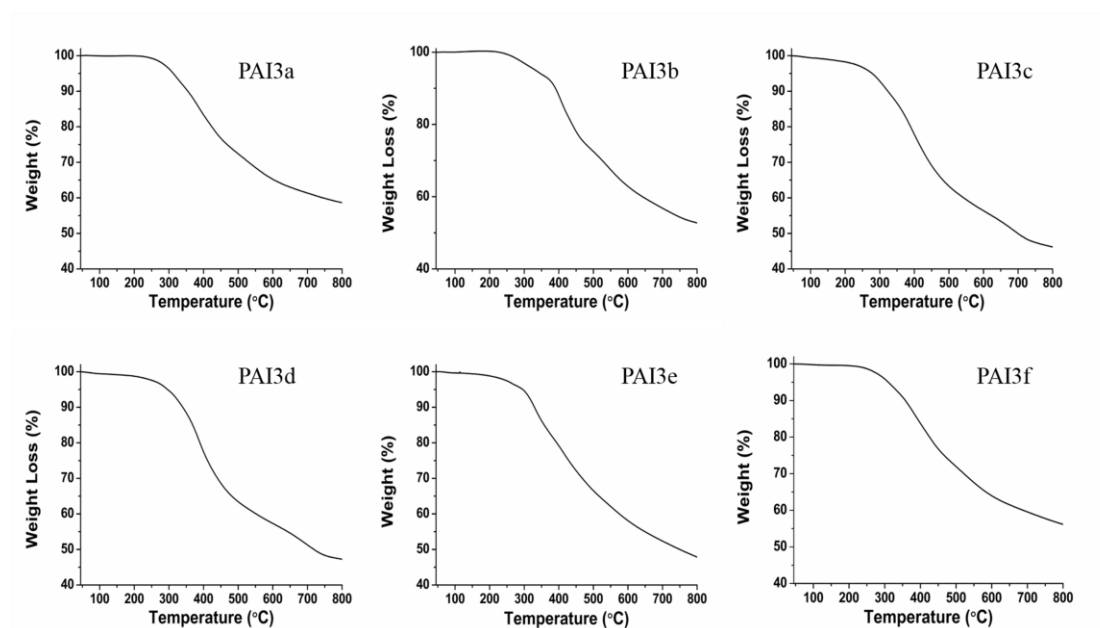


Figure S5. TGA graphs of PAI3a-PAI3f.

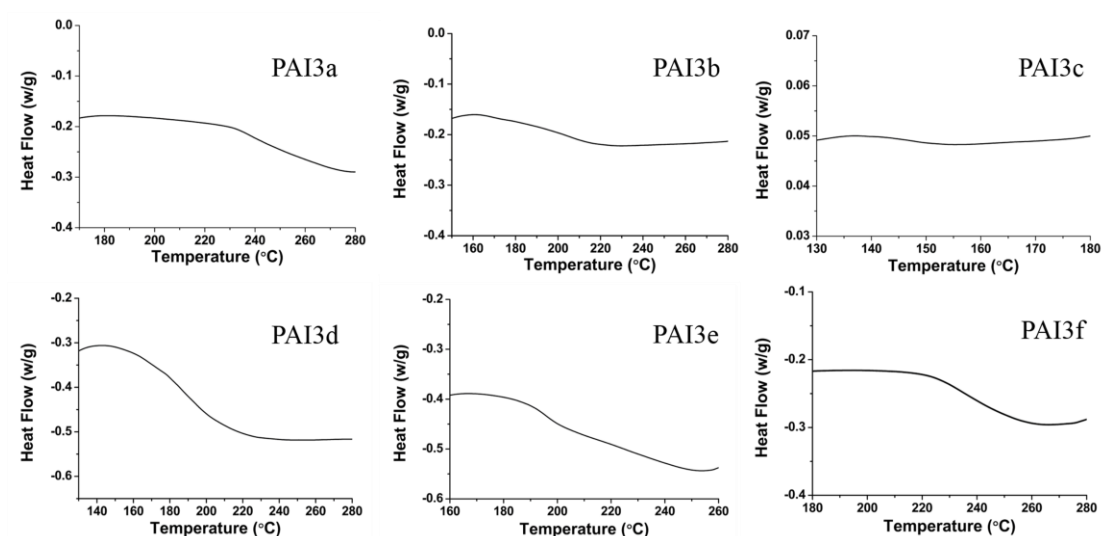


Figure S6. DSC graphs of PAI3a-PAI3f.