

Supporting Information

AO-resistant Shape Memory Polyimide/Silica Composites with Excellent Thermal Stability and Mechanical Properties

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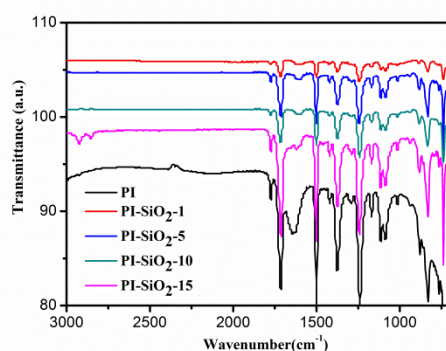


Figure.S1 FT-IR for pristine PI and PI/SiO₂ composite films

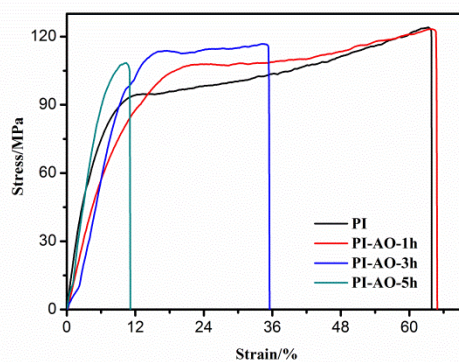


Figure.S2 Tensile stress versus strain curves of pristine PI with different AO exposure time

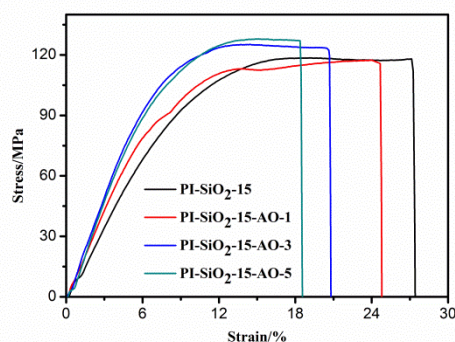


Figure.S3 Tensile stress-versus strain curves of PI-SiO₂-15 with different AO exposure time

Table.S1 Shape fixation and shape recovery ratio for PI/silica composite films

	R _f (%)					R _r (%)				
	N=1	N=2	N=3	N=4	N=5	N=1	N=2	N=3	N=4	N=5
Pristine PI	98.82	98.93	97.80	97.68	97.60	75.31	89.50	89.58	90.14	89.57
	±0.1	±0.9	±0.2	±0.5	±0.7	±0.3	±0.1	±0.0	±0.0	±0.1
	3	6	1	5	3	0	0	3	5	9
PI-1	99.17	98.64	98.65	98.29	98.24	77.05	83.33	88.02	90.86	86.42
	±0.0	±0.0	±0.0	±0.0	±0.0	±0.0	±0.0	±0.1	±0.0	±0.1
	7	5	4	5	3	5	3	3	4	5
PI-5	98.46	97.64	97.66	97.28	97.05	82.85	87.69	88.74	89.85	93.25
	±0.0	±0.0	±0.1	±0.1	±0.0	±0.1	±0.0	±0.2	±0.0	±0.0
	3	6	0	2	6	2	1	5	8	5
PI-10	98.50	97.71	97.69	97.37	97.91	77.25	84.48	85.18	91.23	89.70
	±0.1	±0.1	±0.0	±0.1	±0.0	±0.1	±0.4	±0.4	±0.0	±0.1
	8	4	3	1	7	3	3	9	5	5
PI-15	98.63	97.65	97.69	97.35	97.45	77.72	89.80	90.25	92.45	92.91
	±0.0	±0.3	±0.1	±0.1	±0.1	±0.4	±0.1	±0.2	±0.0	±0.0
	3	5	0	8	4	0	3	6	5	3
PI-AO-1	98.90	98.05	97.52	97.08	96.84	79.35	88.35	88.81	89.23	93.36
	±0.1	±0.0	±0.1	±0.1	±0.0	±0.0	±0.3	±0.0	±0.1	±0.4
	5	5	2	1	5	3	0	2	0	5
PI-AO-3	98.79	97.85	97.35	97.13	96.87	79.95	88.63	92.54	91.83	92.56
	±0.1	±0.1	±0.0	±0.0	±0.0	±0.0	±0.1	±0.1	±0.0	±0.0
	1	7	5	8	6	4	2	5	4	2
PI-AO-5	98.93	98.42	98.16	98.82	97.51	79.10	90.62	88.53	85.52	88.82
	±0.0	±0.1	±0.1	±0.4	±0.2	±0.0	±0.0	±0.1	±2.8	±1.3
	6	4	7	2	3	3	2	4	0	2
PI-15-AO-1	98.62	97.53	97.36	96.54	95.59	76.50	84.81	90.46	90.54	90.26
	±0.0	±0.4	±0.5	±0.3	±0.1	±0.1	±0.1	±0.1	±0.4	±0.1
	6	2	6	8	5	1	8	7	8	2
PI-15-AO-3	98.89	98.36	97.36	96.65	96.37	71.54	89.31	88.23	89.19	90.65
	±0.0	±0.1	±0.2	±0.3	±0.1	±0.3	±0.3	±0.3	±0.0	±0.7
	5	7	3	4	4	1	8	0	9	8
PI-15-AO-5	98.85	98.02	97.72	97.19	96.87	77.72	89.67	89.27	88.25	89.50
	±0.0	±0.0	±0.1	±0.5	±0.2	±0.2	±0.2	±0.0	±0.1	±0.3
	4	5	2	6	1	4	7	7	8	9