

Supporting Information

Synthesis and properties of polyimide silica nanocomposite film with high transparent and radiation resistance

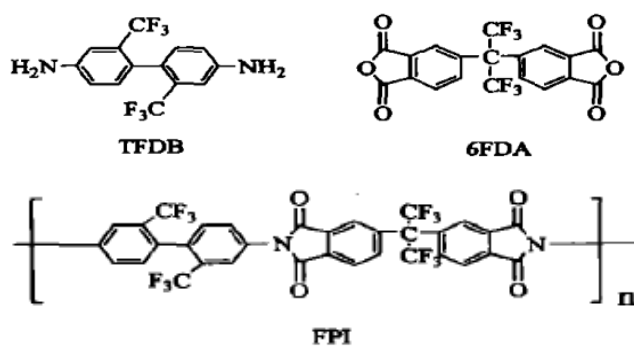


Figure S1. The molecular formula of TFDB, 6FDA and obtained fluorine-containing PI.

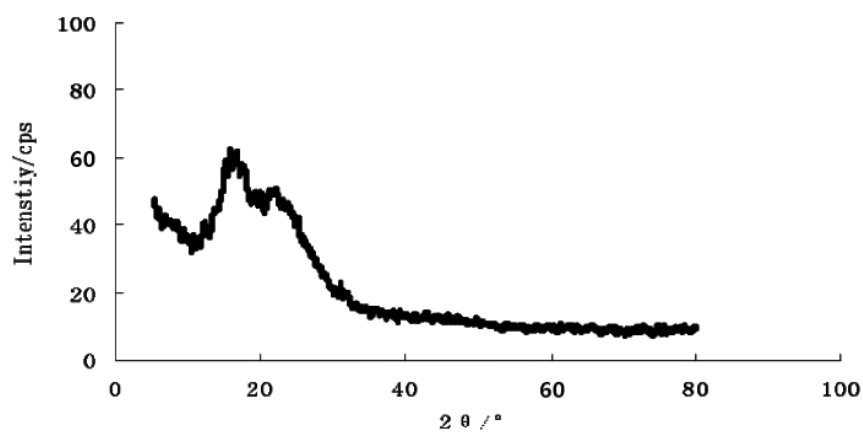


Figure S2. The XRD spectrum of the SiO₂ nanoparticles

Table S1. The required amount of PI/SiO₂ films with various SiO₂ contents

Samples	Mass (g)					Percentage of SiO ₂ (%)	Content of PAA Solution (%)
	SiO ₂	TFDB	6FDA	DMAc	KH560		
PI	0	3.203	4.532	77.735	0	0	10
PIS05	0.444	3.207	4.529	77.740	0.01332	5.43	9.95
PIS10	0.877	3.210	4.531	77.743	0.02633	10.28	9.96
PIS20	1.937	3.209	4.534	77.738	0.05811	20.01	9.96
PIS30	3.285	3.206	4.530	77.741	0.09855	29.81	9.95

Table S2. The most commonly used wave numbers of the imide group

Group	Characteristic Adsorption Peak (cm ⁻¹)	Type of Adsorption Peak
Imide	1780	asymmetry extensional vibration of C=O
	1720	symmetrical extensional vibration of C=O
	1380	extensional vibration of C-N
	720	flexural vibration of C=O