

Supplementary Information

Ultra-low concentration PVA-doped PMMA: An all-organic dielectric with markedly improved dielectric properties and energy storage performance

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Fig. S1. The PVA/PMMA blended solution undergoes gelation transformation.

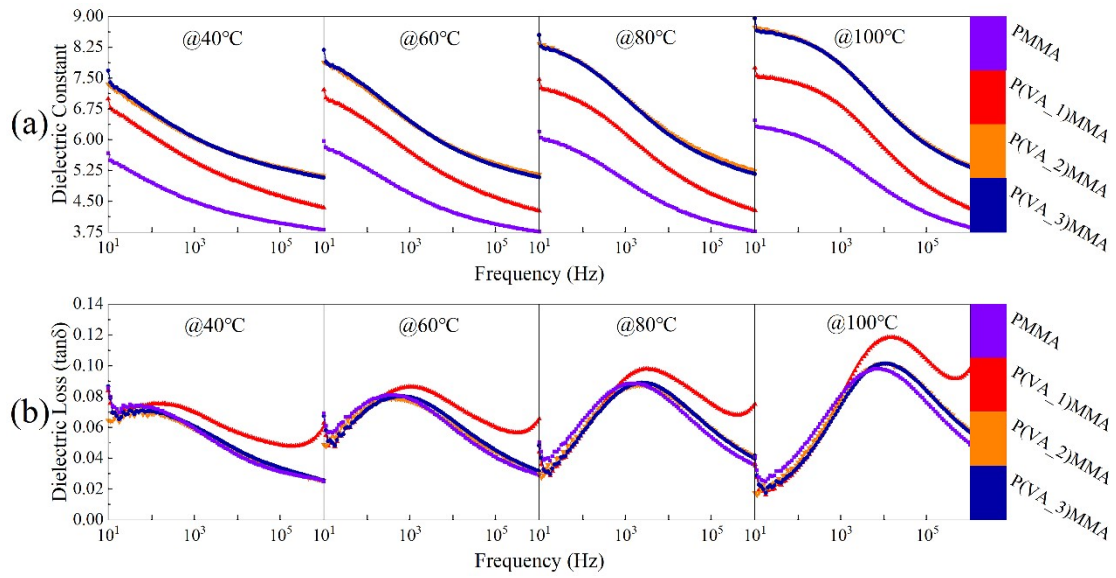


Fig. S2. (a) Dielectric constant versus frequency and (b) Dielectric loss versus frequency curves of pure PMMA films and P(VA)MMA composite films at different testing temperatures

Fig. S2 demonstrates the frequency-dependent dielectric constant (ϵ_r) and dielectric loss tangent ($\tan\delta$) of pure PMMA films and P(VA)MMA composite films at varying test temperatures (40°C, 60°C, 80°C, 100°C).

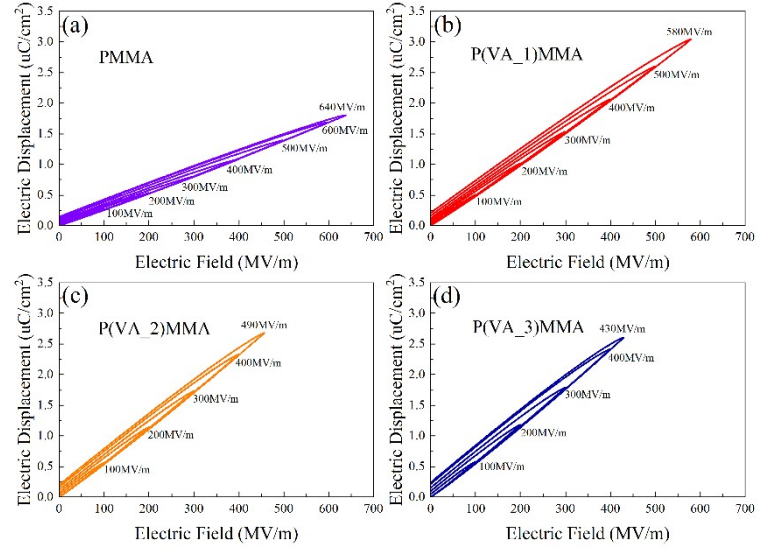


Fig. S3. D-E curves of pure PMMA films and P(VA)MMA composite films under different electric field intensities

Figs. S3 (a)-(d) respectively present the D-E curves of pure PMMA, P(VA_1)MMA, P(VA_2)MMA, and P(VA_3)MMA films under varying electric fields.

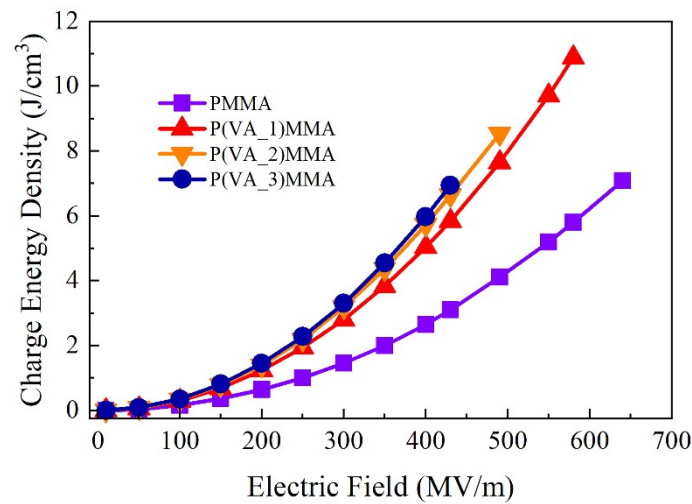


Fig. S4. U_c of pure PMMA films and P(VA)MMA composite films

Fig. S4 presents the charging energy density (U_c) of pure PMMA, P(VA_1)MMA,

P(VA_2)MMA, and P(VA_3)MMA films.

Table S1. The measured breakdown electric field (E_b) values of the dielectric thin films.

Material	E_b (MV/m)							
	1	2	3	4	5	6	7	8
PMMA	420	540	570	620	630	650	680	690
P(VA_1)MMA	480	520	520	530	560	580	580	620
A								
P(VA_2)MMA	370	370	400	420	480	490	490	500
A								
P(VA_3)MMA	300	330	360	400	440	450	460	460
A								