

Electronic Supplementary Information

Effective increase in refractive index of novel transparent silicone hybrid films by introduction of functionalized silicon nanoparticles

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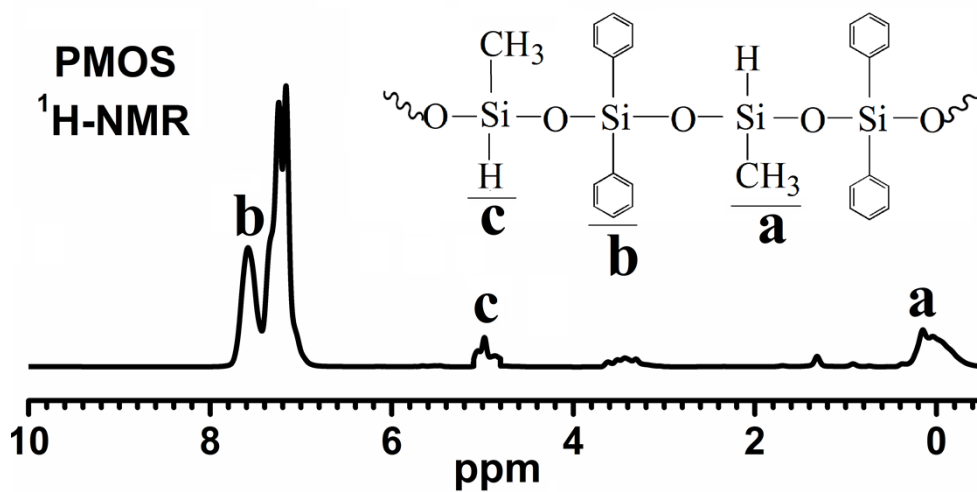


Fig. S1 ¹H-NMR spectrum of the prepared PMOS using chloroform-*d* as solvent.

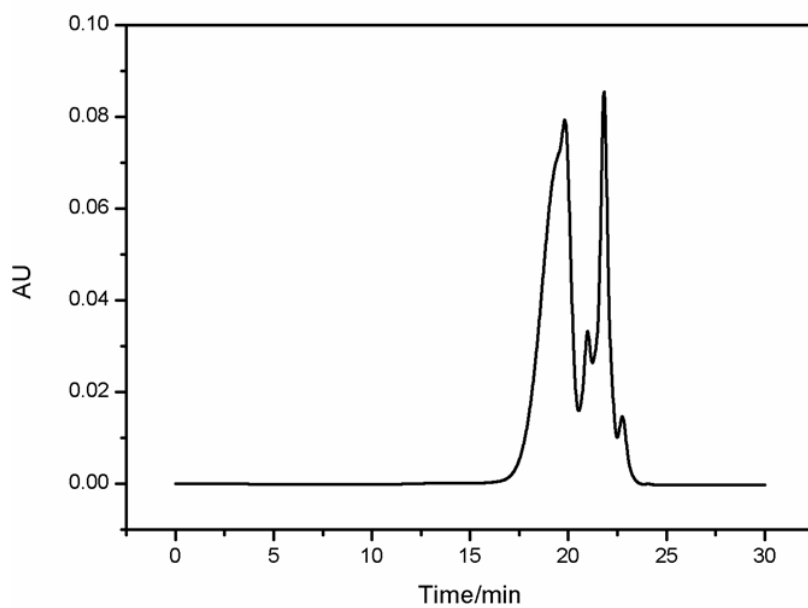


Fig. S2 GPC result of the prepared PMOS (Mn:887, Mw: 1068, Mw/Mn = 1.2)

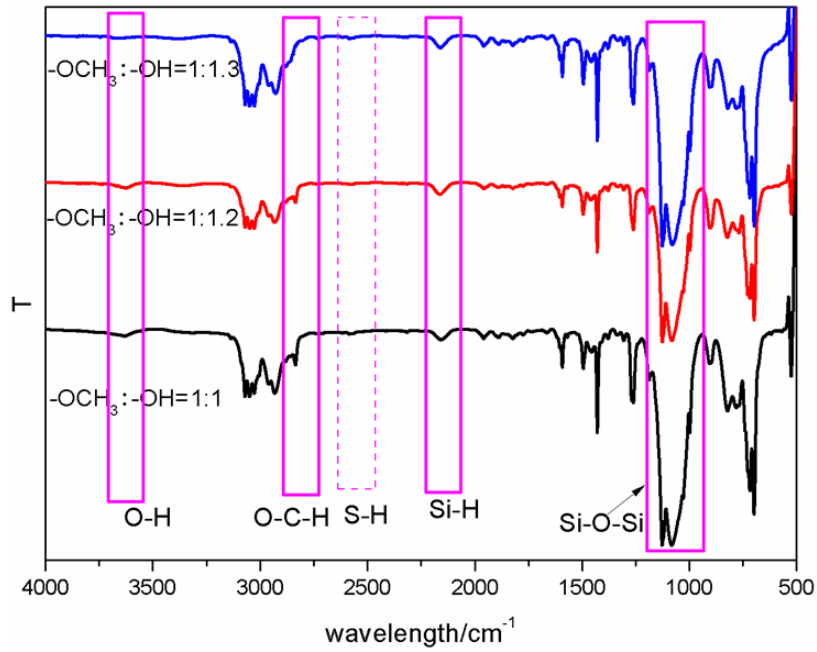


Fig.S3 FT-IR spectra of the prepared PMOS with different molar ratio of DMMS and DPSD: 1:1, 1:1.2, 1:1.3.

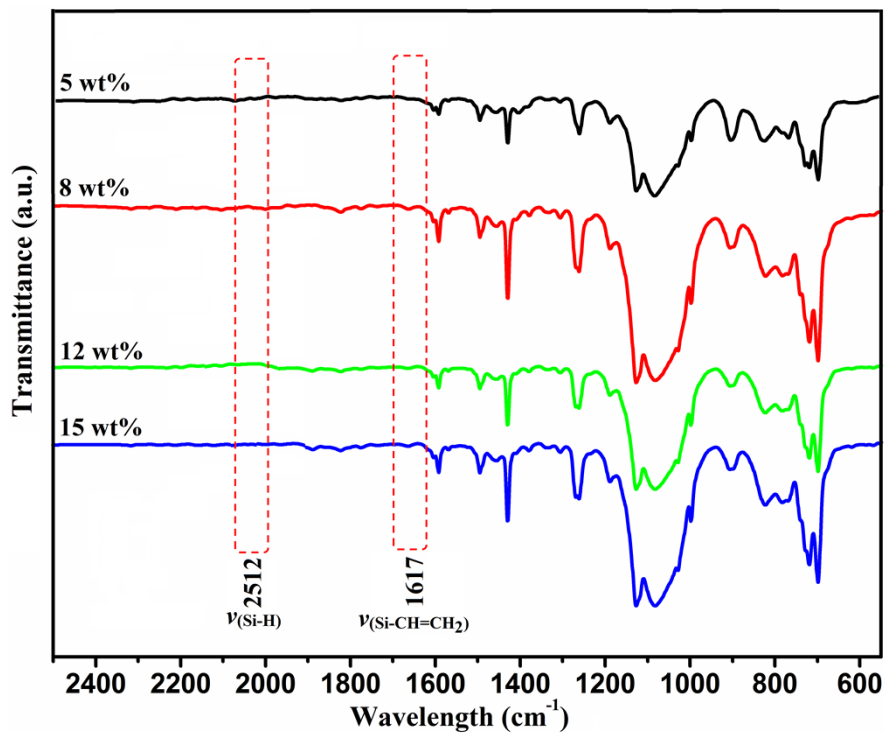


Fig. S4 FT-IR spectra of the prepared novel silicone hybrid films with different weight content of Si NPs.

Table S1 Selected optical and thermal properties of silicone hybrid films

Vinyl-Si NPs (wt%) ^a	residue (wt%) ^b	T_d (°C) ^c	Pencil hardness	$T\%$ at 550 nm ^d	n at 589 nm ^d	n at 632.8 nm ^d
0	6.3	375	2H	96.5	1.632	1.563
5	7.8	368	2H	94.4	1.715	1.621
8	10.1	379	2H-3H	93.8	1.748	1.643
12	15.1	366	2H-3H	91.7	1.789	1.692
15	17.8	373	3H	89.6	1.823	1.727

^a Theoretical weight content of Si NPs in films. ^b Char yield of the films at 800 °C. ^c Initial decomposition temperatures of the films. ^d The silicone hybrid films with a thickness about 0.1 mm.

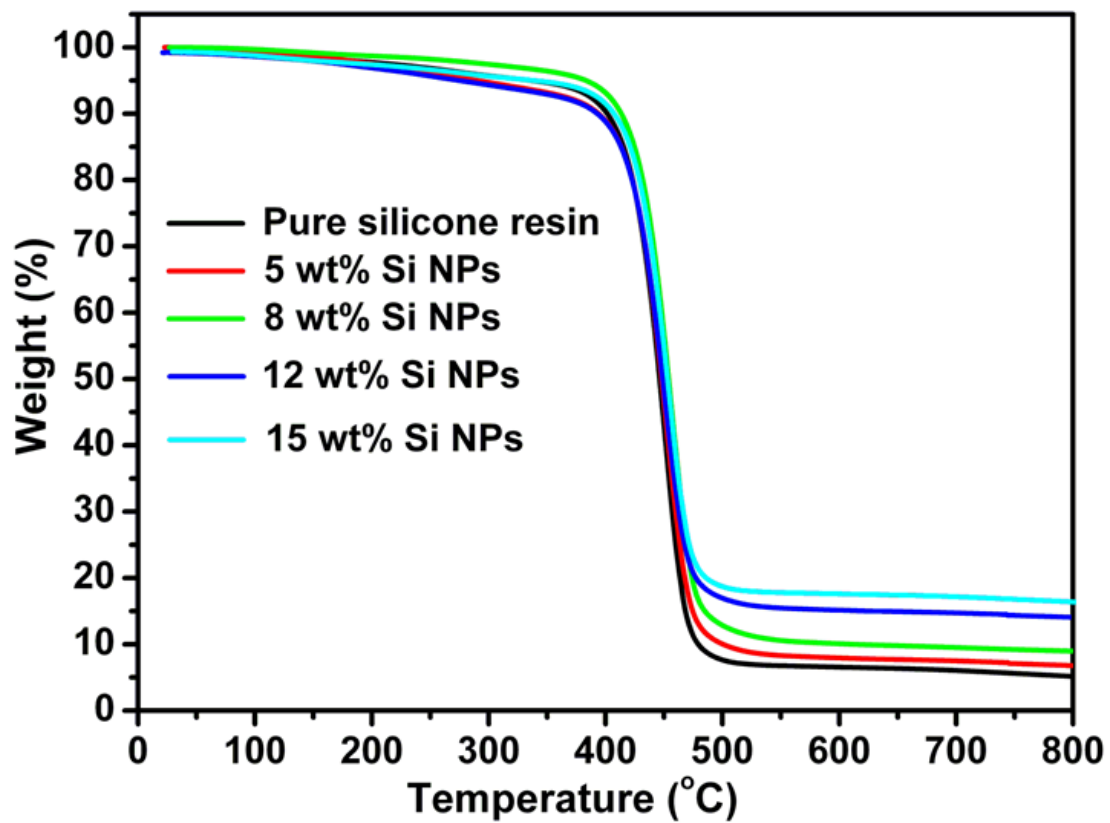


Fig. S5 TGA curves of the silicone hybrid films containing different amounts of Si NPs.