

Studies on mechanical, thermal and dynamic mechanical properties of functionalized nanoalumina/reinforced sulphone ether linked tetra glycidyl-toughened epoxy nanocomposites

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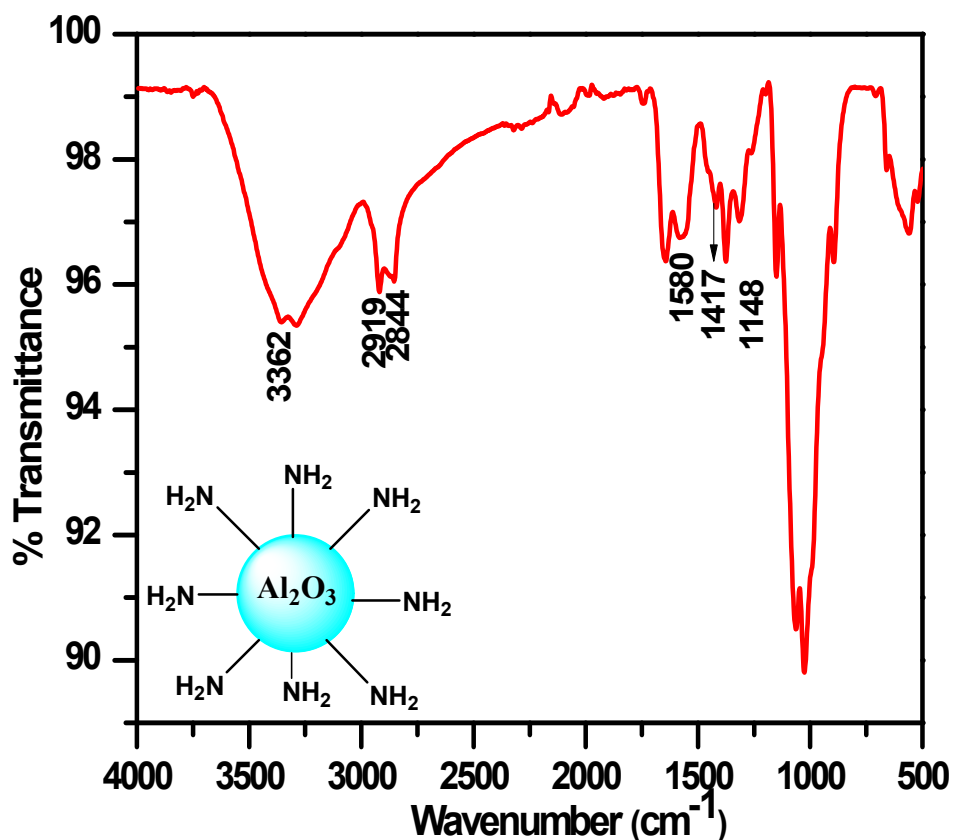


Fig. S1. FT-IR spectrum of F-nAl

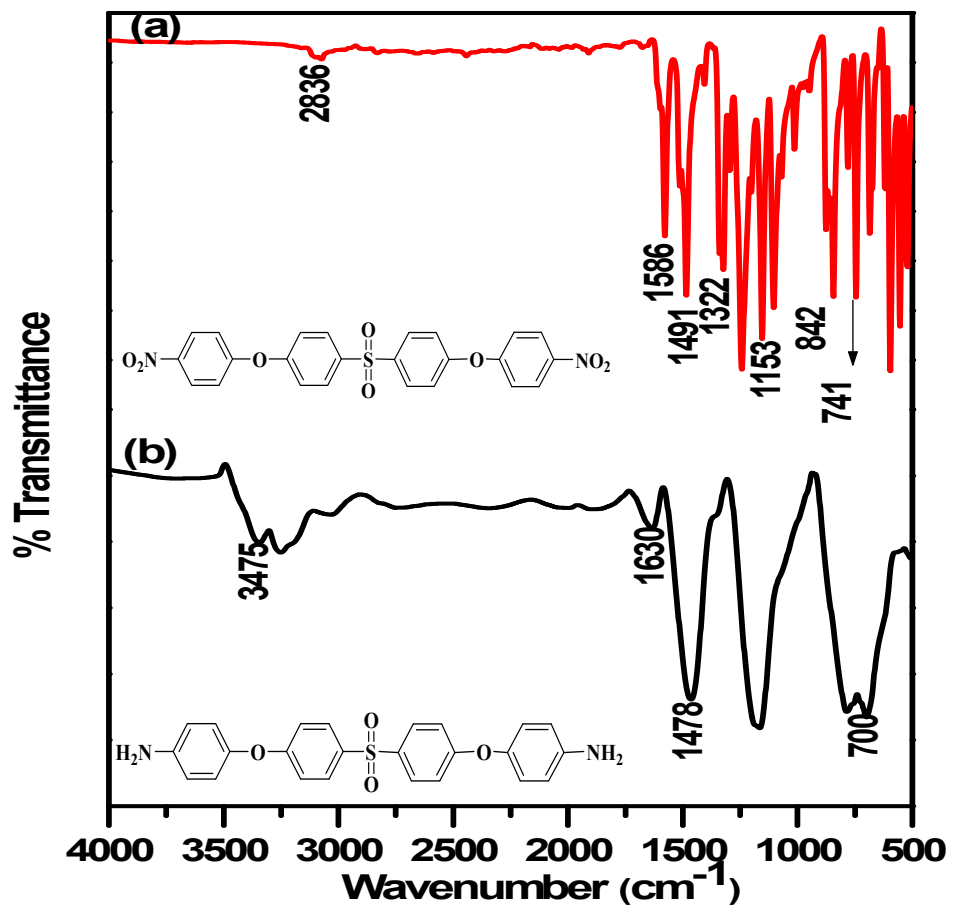


Fig. S2. FT-IR spectra of (a) BNPSB (b) BAPSB

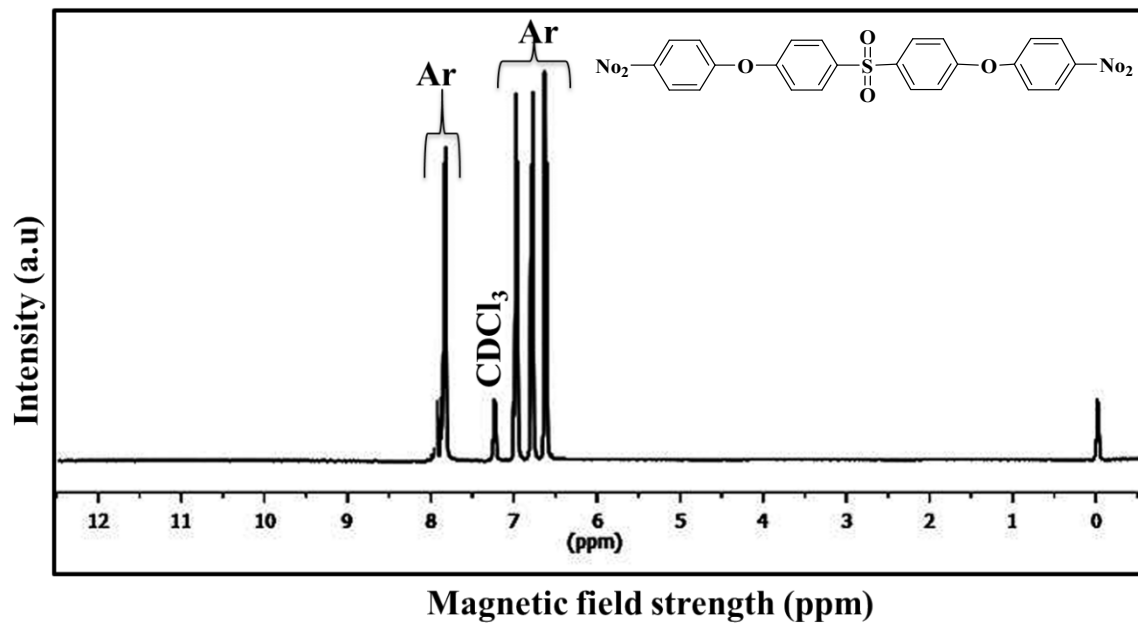


Fig. S4. $^1\text{H NMR}$ spectrum of BNPSB

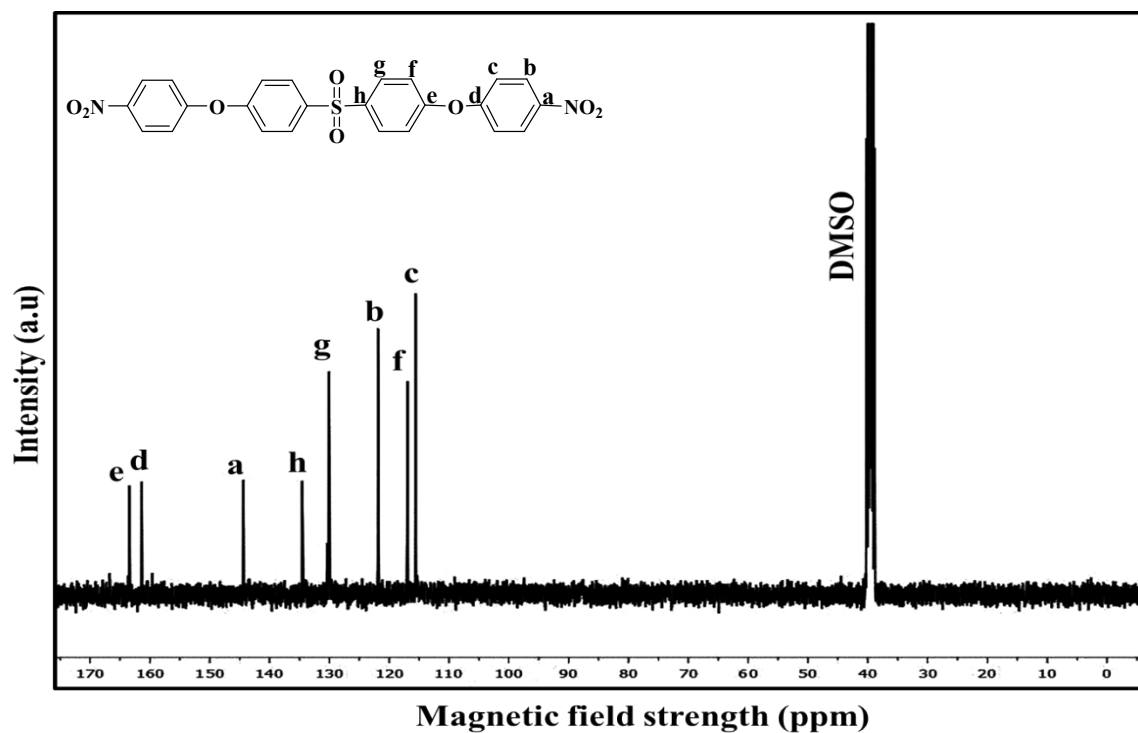


Fig. S5. $^{13}\text{C NMR}$ spectrum of BNPSB

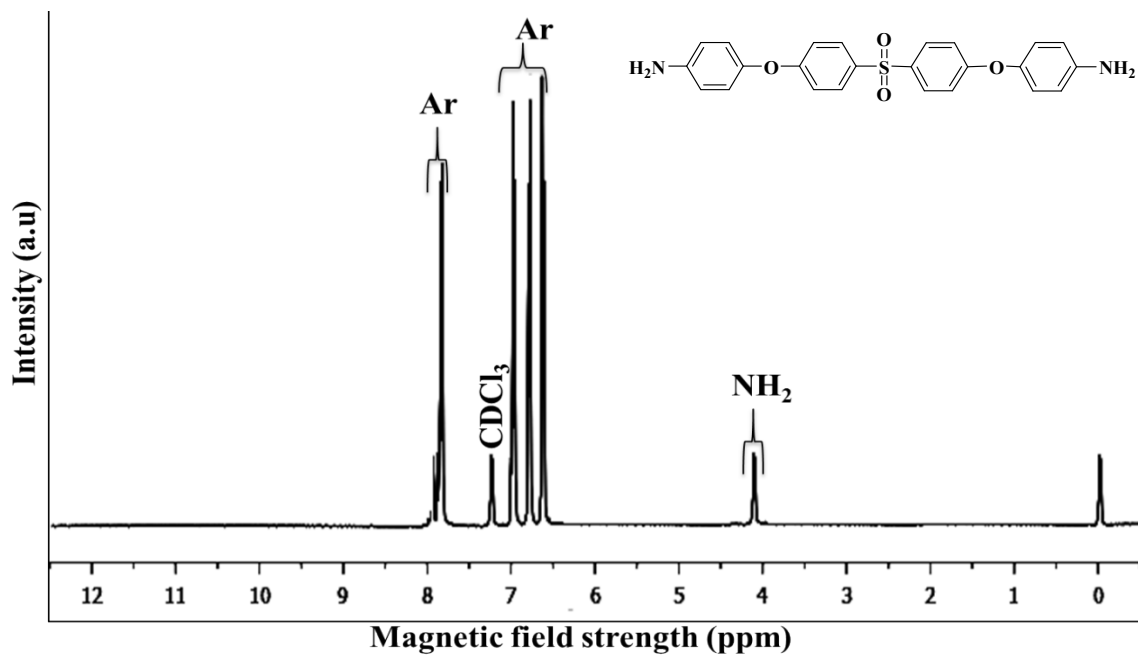


Fig. S6. ¹H NMR spectrum of BAPSB

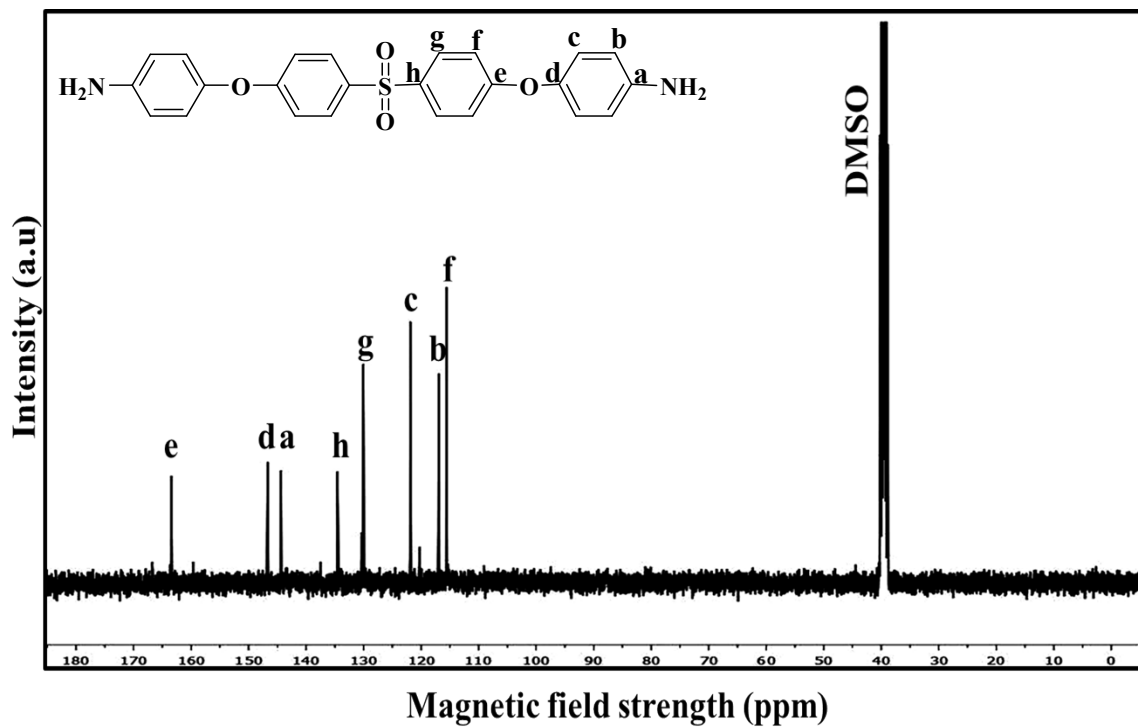


Fig. S7. ^{13}C NMR spectrum of BAPSB

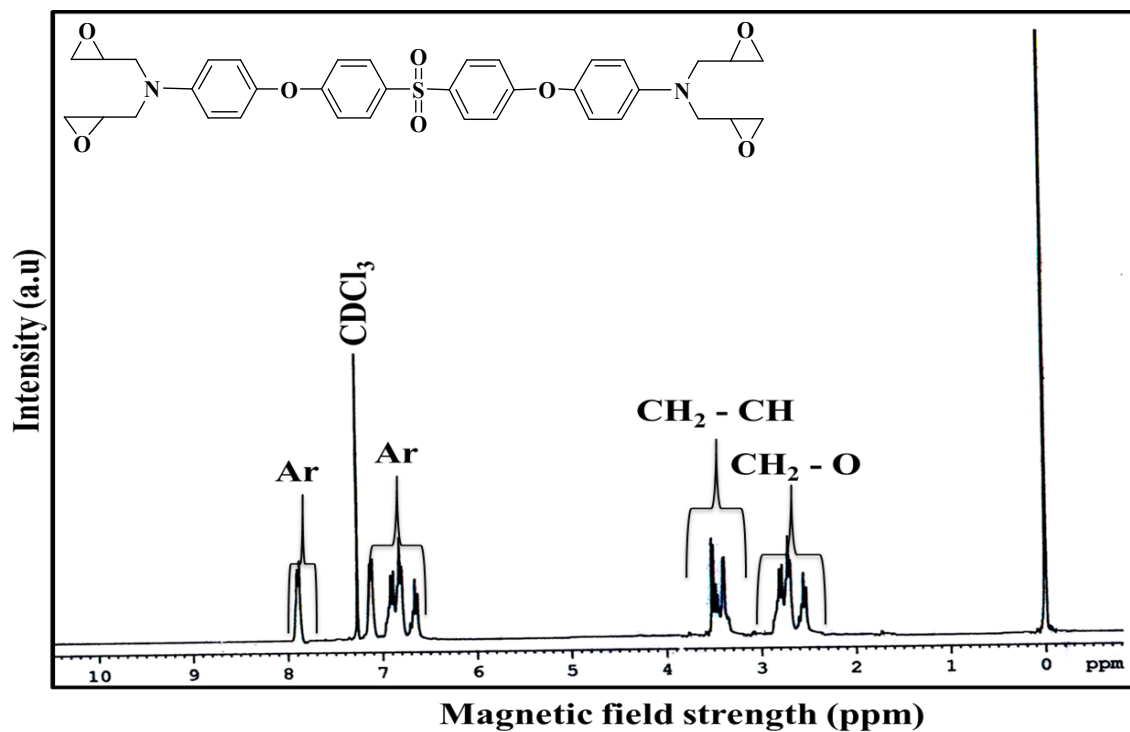


Fig. S8. ^1H NMR spectrum of TGBAPSB epoxy resin

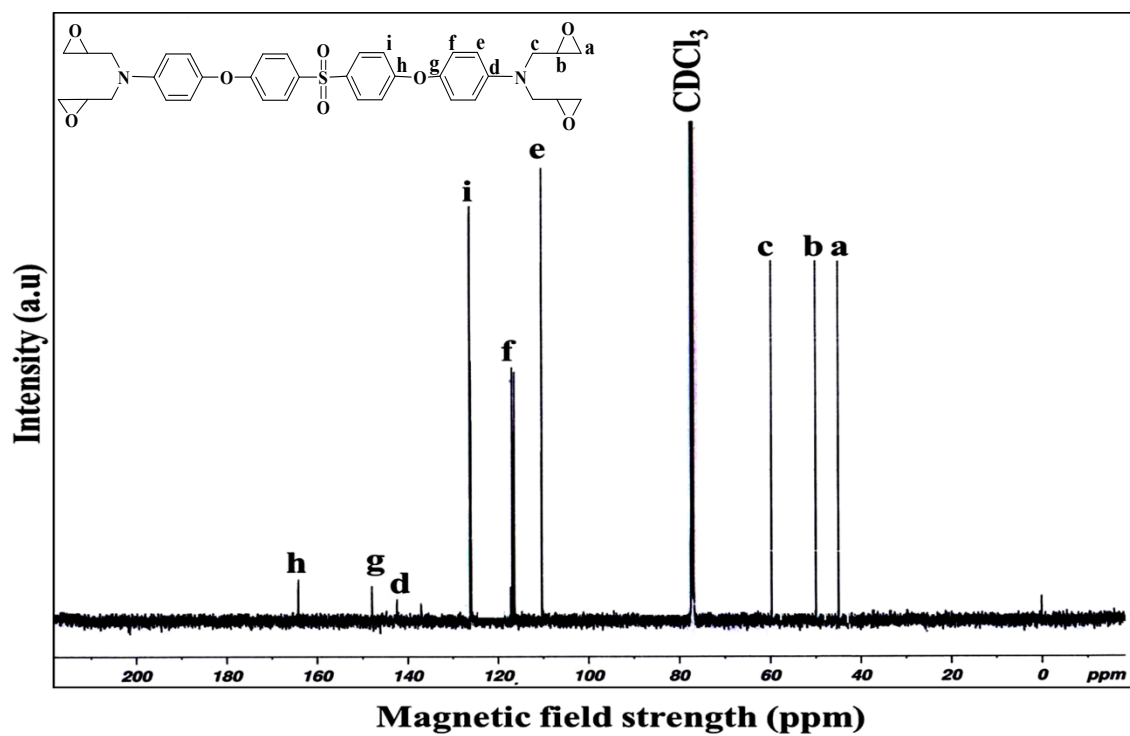


Fig. S9. ^{13}C NMR spectrum of TGBAPSB epoxy resin

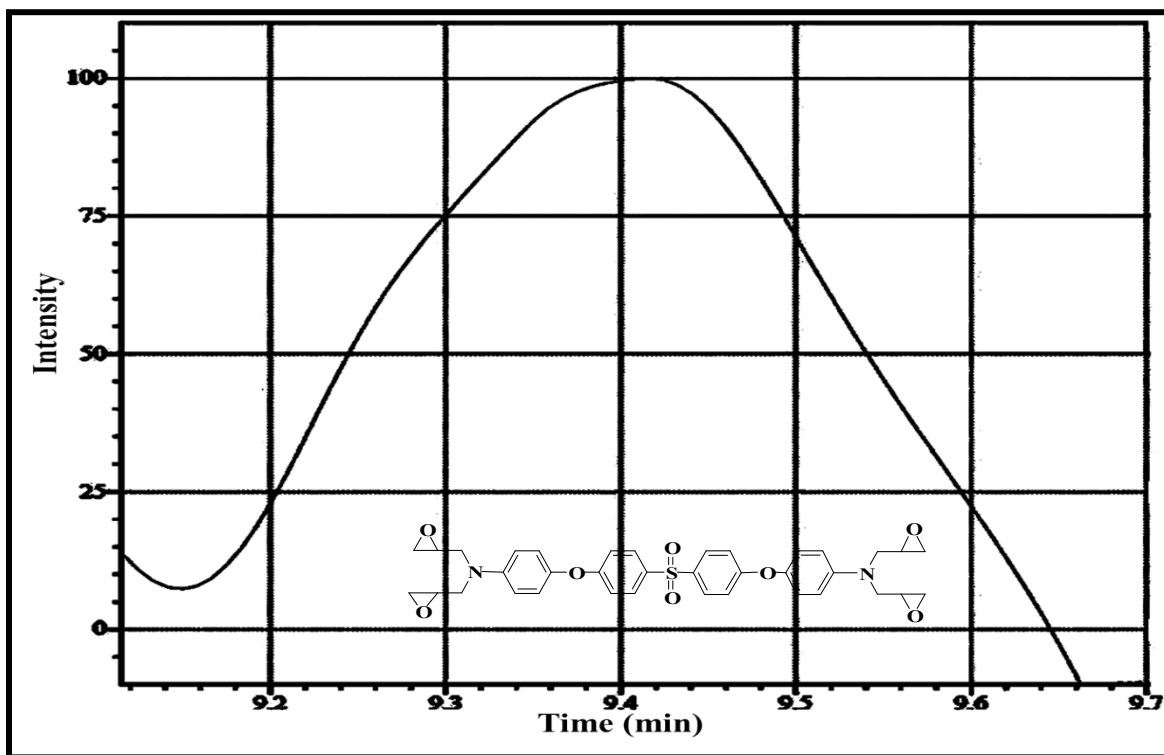


Fig. S10. GPC of TGBAPSB epoxy resin

Table S1

Nomenclature of TGBAPSB epoxy nanocomposites

System	TGBAPSB/% F-nAl	Curative
a	100/0	DDM
b	100/1	DDM
c	100/3	DDM
d	100/5	DDM

Table S2

Data on mechanical properties of TGBAPSB epoxy nanocomposites

System	TGBAPSB/%F-nAl	Tensile Strength (MPa)	Flexural strength (MPa)	Impact strength (J/m)
a	100/0	84.3±5	170.3±1	197.4±3
b	100/1	104.5±2	191.4±3	218.3±1
c	100/3	124.5±3	212.5±1	238.4±2
d	100/5	106.4±2	189.5±1	216.3±3

Table S3

DMA results of TGBAPSB epoxy nanocomposites

System	TGBAPSB /% F-nAl	Storage modulus (GPa)	Glass transition temperature, T_g (°C)
a	100/0	3.2	145
b	100/1	3.3	188
c	100/3	4.8	203
d	100/5	2.4	176