

Supplementary Information

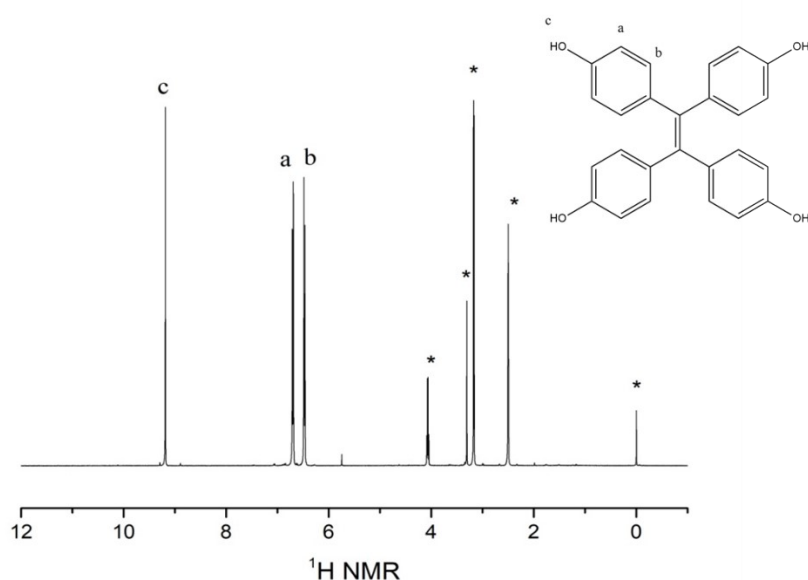
AIE-Active Vitriimer with Photoluminescence, Reprocessibility and Shape Memory Effect

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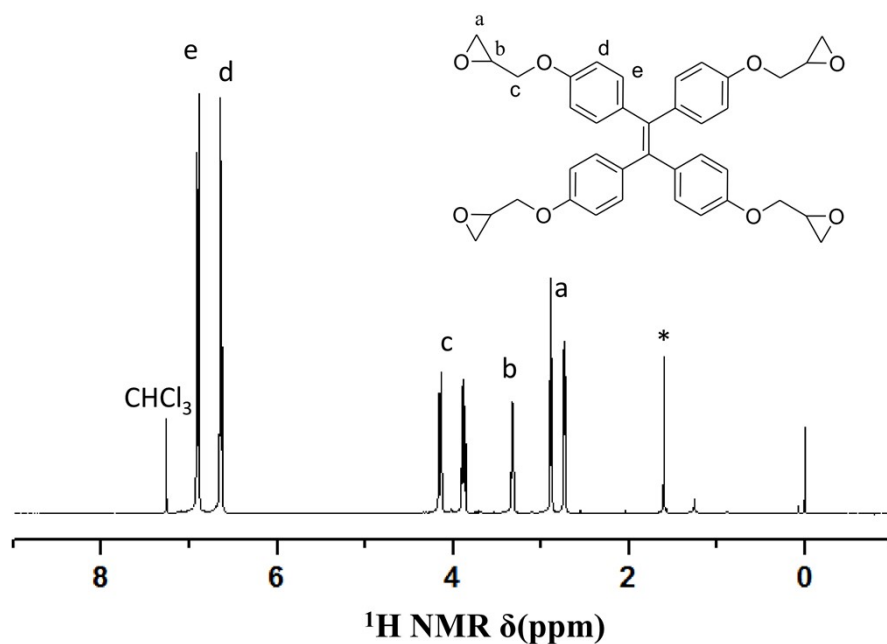
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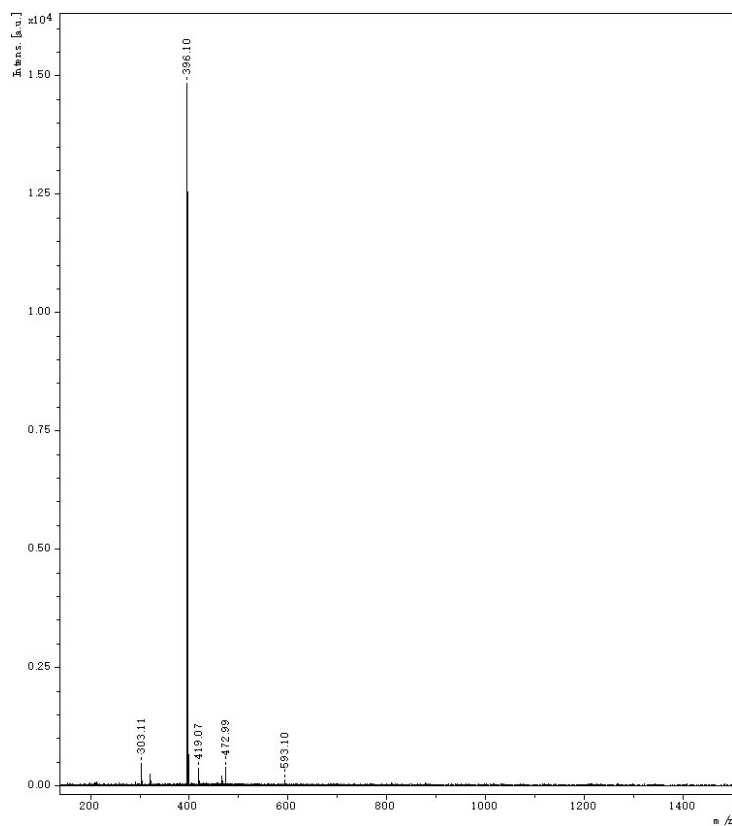
Characterization of chemical structures



Supplementary Figure S1 ¹H NMR spectra of tetra(4-hydroxyphenyl)ethylene ([DMSO-d₆, 400 MHz]): δ=9.19 (4H, -OH), δ=6.69-6.71 (8H, Ar-H, a), δ=6.46-6.49 (8H, Ar-H, b)

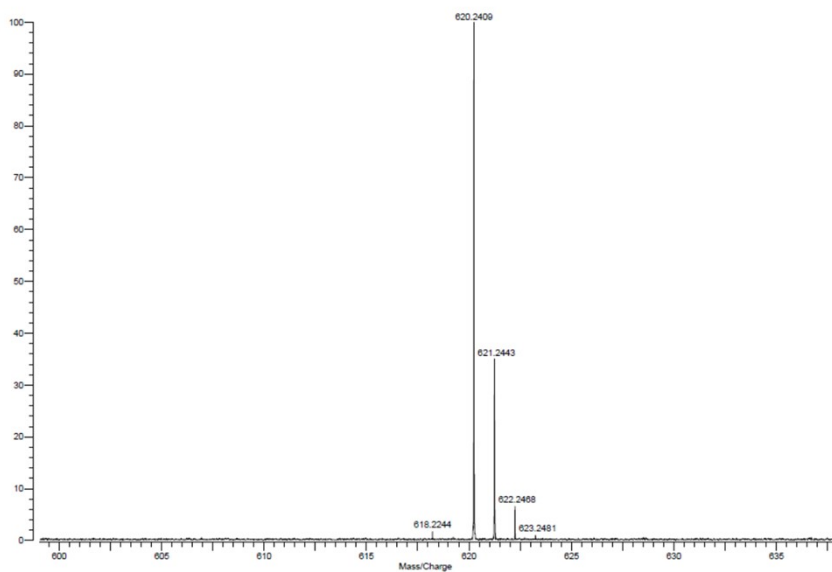


Supplementary Figure S2 ^1H NMR spectra of tetra(4-glycidyoxyphenyl) ethylene ($[\text{CDCl}_3, 400 \text{ MHz}]$): $\delta=6.98\text{-}6.96$ (8H, Ar-H), $\delta=6.69\text{-}6.71$ (8H, Ar-H), $\delta=4.21\text{-}4.11, 3.97\text{-}3.93$ (8H, -O-CH₂), $\delta=3.33\text{-}3.37$ (4H, -CH₂-CH-CH₂), $\delta=2.90\text{-}2.95, 2.74\text{-}2.78$ (8H, -CH-CH₂).



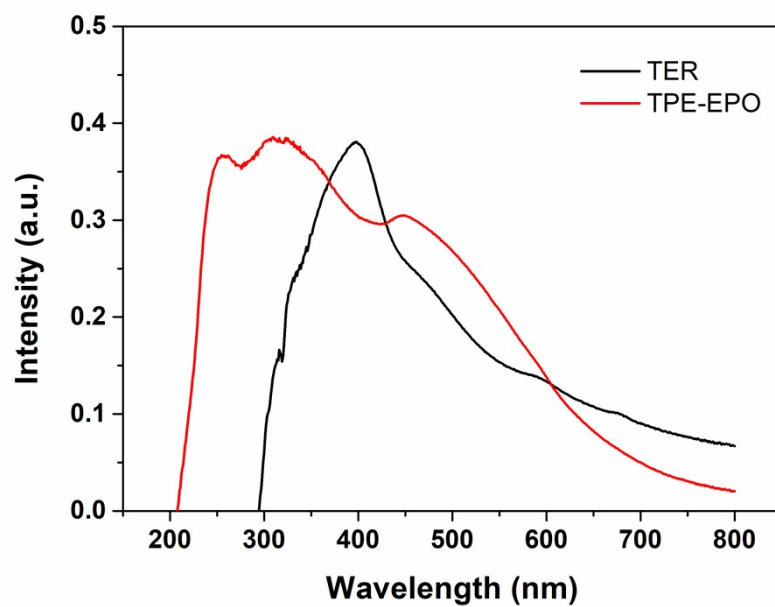
Supplementary Figure S3 MALDI-TOF MS spectrum recorded for TPE-OH. The m/z calcd

for $C_{26}H_{20}O_4^+$: 396.14, found 396.10.

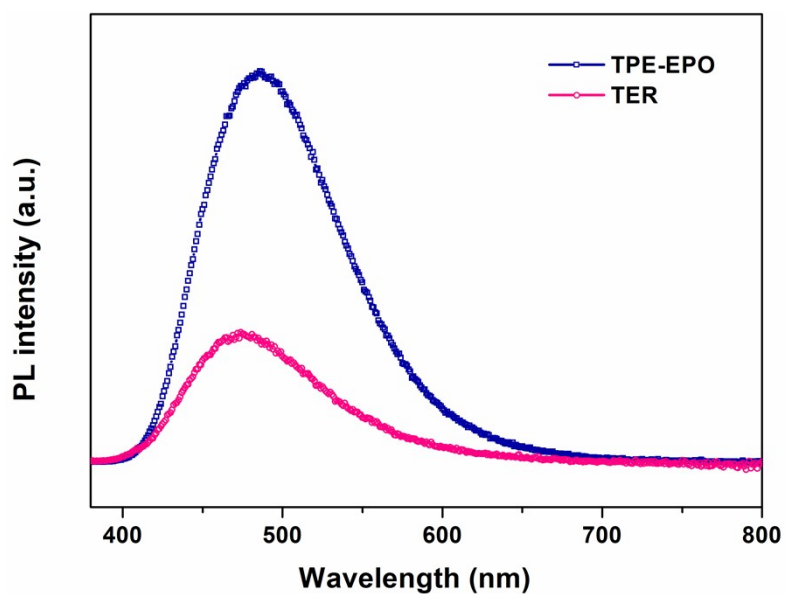


Supplementary Figure S4 MS spectrum recorded for TPE-EPO. The m/z calcd for $C_{26}H_{20}O_4^+$: 620.2410, found 620.2409.

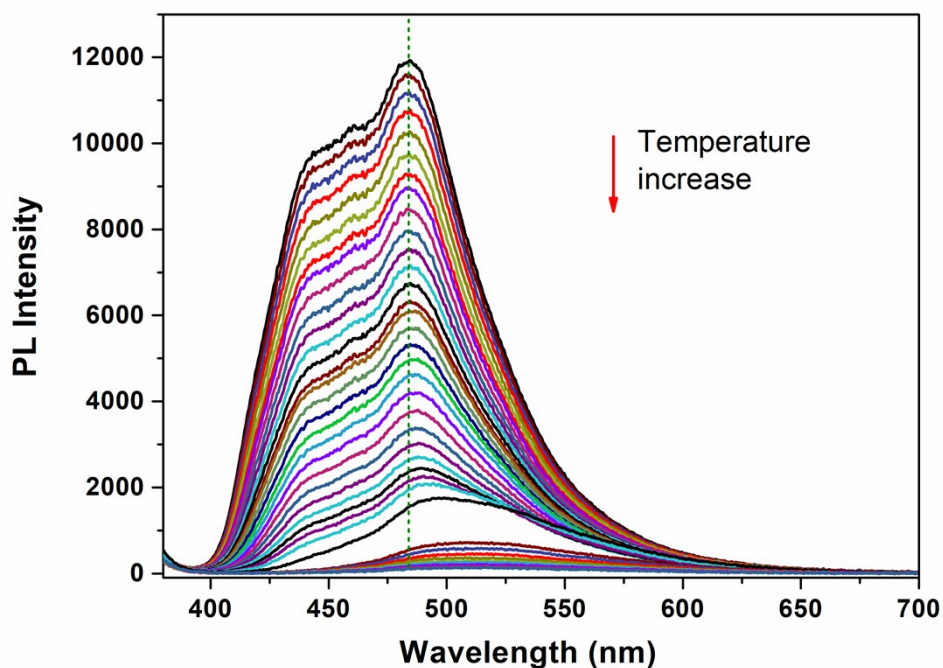
Experimental results



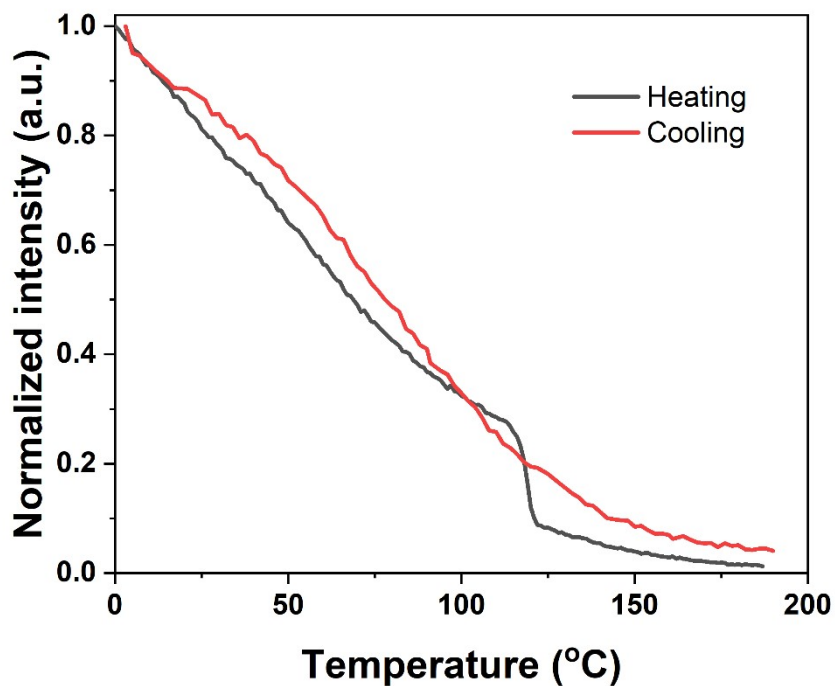
Supplementary Figure S5 UV-vis spectra of TPE-EPO and TER.



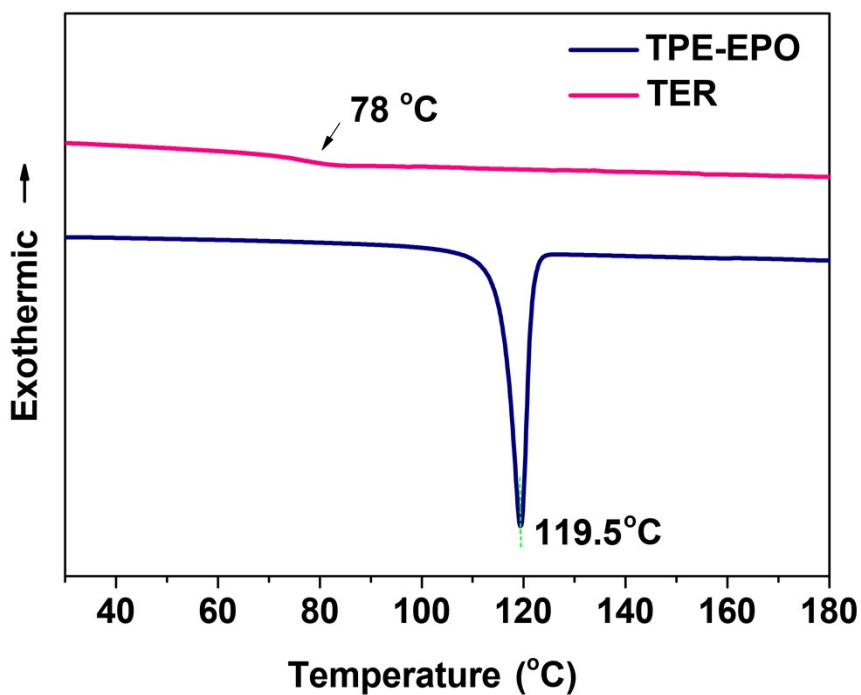
Supplementary Figure S6 Fluorescence emission spectra of TPE-EPO and TPE with excitation light of 365nm.



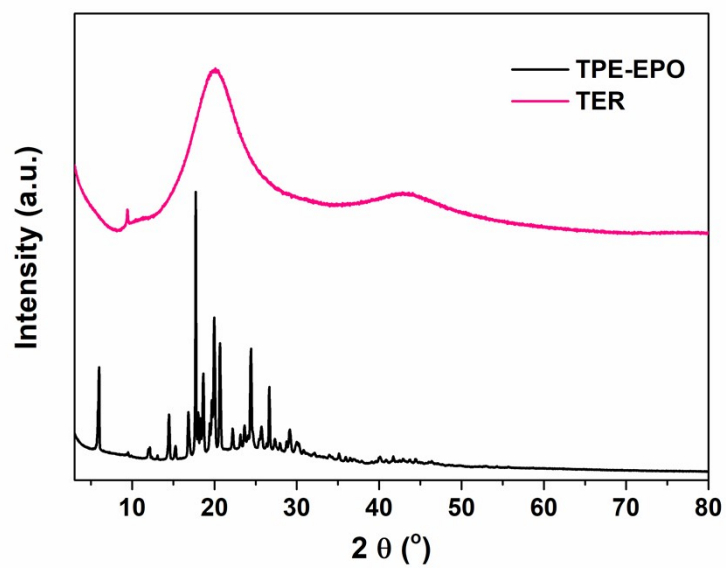
Supplementary Figure S7 Fluorescence spectra of TPE-EPO at different temperature from 0 to 190 °C



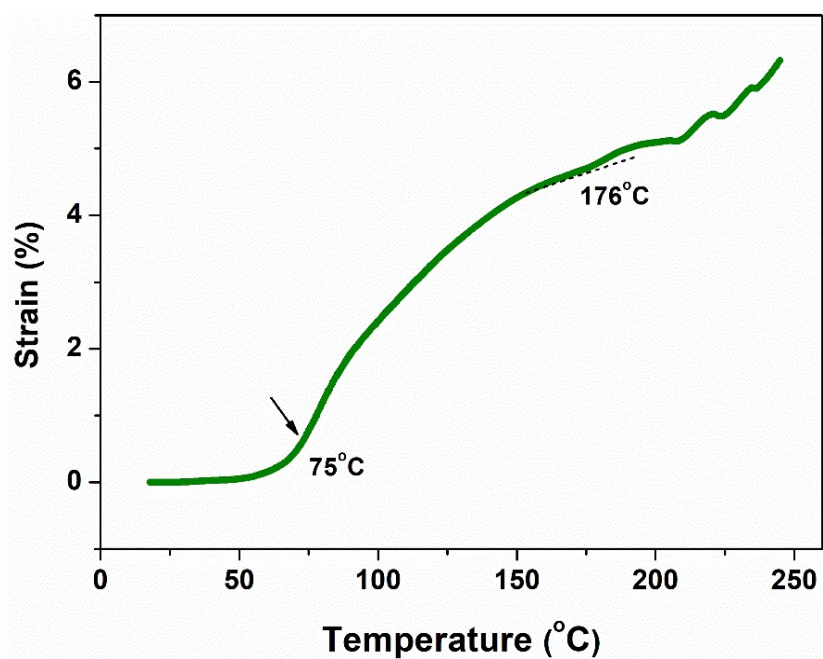
Supplementary Figure S8 Plot of normalized fluorescence intensities from 0°C - 190 °C in heating/cooling scan at the wavelength of 490 nm.



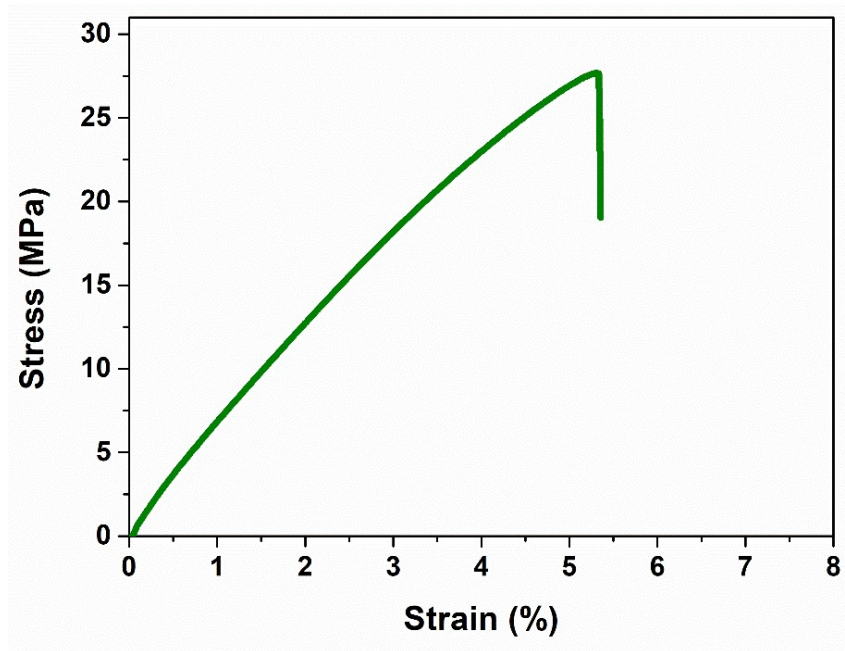
Supplementary Figure S9 DSC traces of TER and TPE-EPO upon heating scan (rate of 10 °C/min)



Supplementary Figure S10 XRD curves of TER vitrimer film and TPE-EPO powder.



Supplementary Figure S11 Dilatometry experimental curve for TER with a heating rate of 5 $^\circ\text{C}/\text{min}$.



Supplementary Figure 12 Stress-strain curve of the TER film at room temperature.