Supporting Information

Silicone-thioxanthone: A multifunctionalized visible light photoinitiator with an ability to modify the cured polymers

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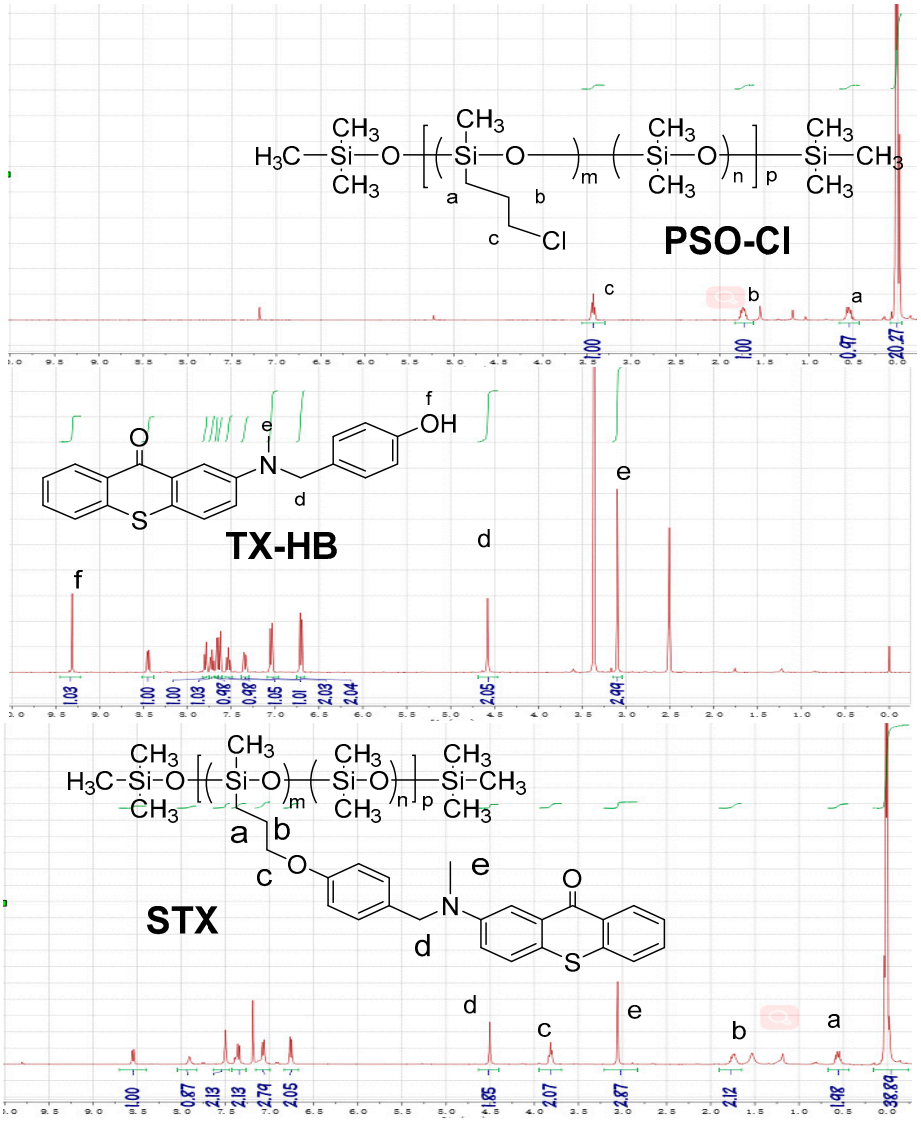

Figure S1. ^{1}H NMR spectra of PSO-Cl ($CDCl_3$), TX-HB (DMSO) and STX ($CDCl_3$).

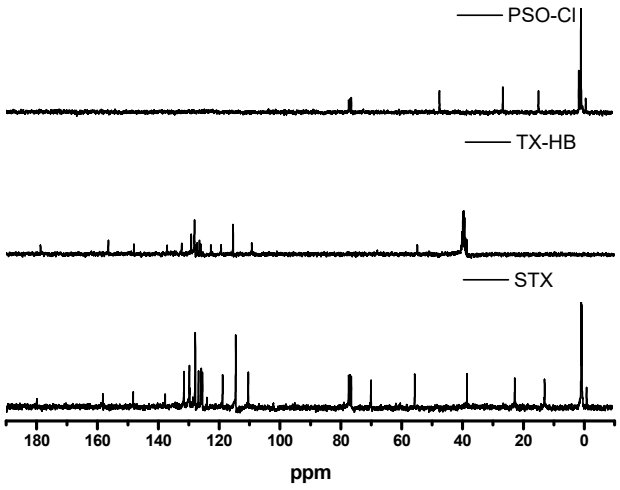

Figure S2. ^{13}C NMR spectra of PSO-Cl ($CDCl_3$), TX-HB (DMSO) and STX ($CDCl_3$).

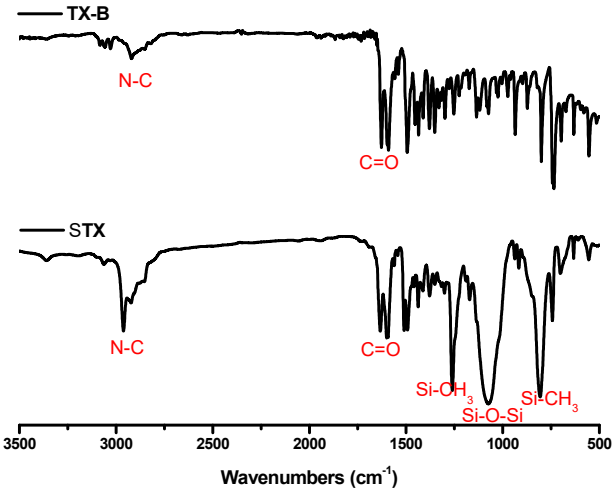

Figure S3. FTIR spectra of TX-B and STX.

STX (0.0074 g) was dissolved in THF and diluted to 50.00 mL. Then the UV-vis spectrum of STX was measured to determine the content of ATX moiety (Fig. S5). It is calculated according to Lambert-Beer law:

$$A = \varepsilon bC = \frac{\varepsilon bn}{V} \qquad (1)$$

where molar extinction coefficient of TX-B (ε = 4848 L·mol^{-1}·cm^{-1}) is used as a standard of thioxanthone group, b is optical path length, which is 1 cm, and V is 50

mL. The number mole of thioxanthone group in STX is 8.37×10^{-6}. The average number of ATX moiety in STX is calculated to be about 3.3.

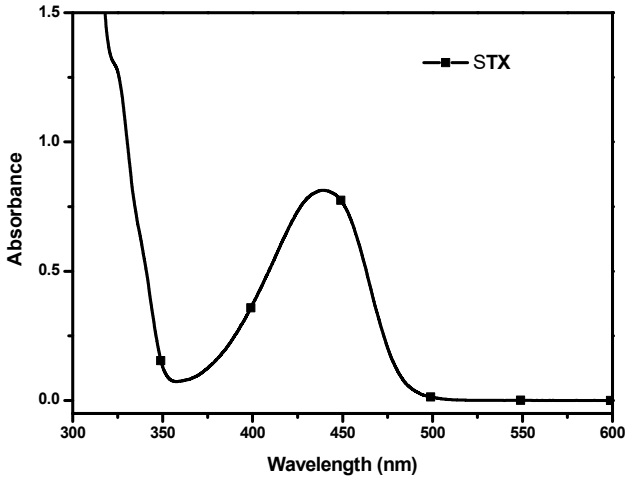

Figure S4. UV-vis of STX in THF.

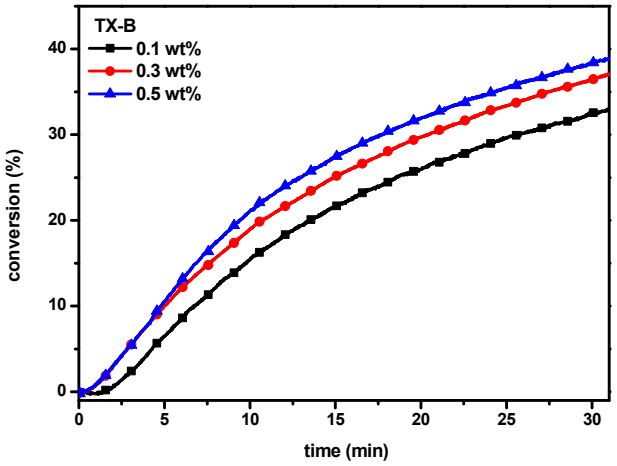

Figure S5. Conversion-time and rate-time for polymerization of TMPTA in THF (THF % = 25 wt%) in laminate initiated by TX-B in different concentrations.

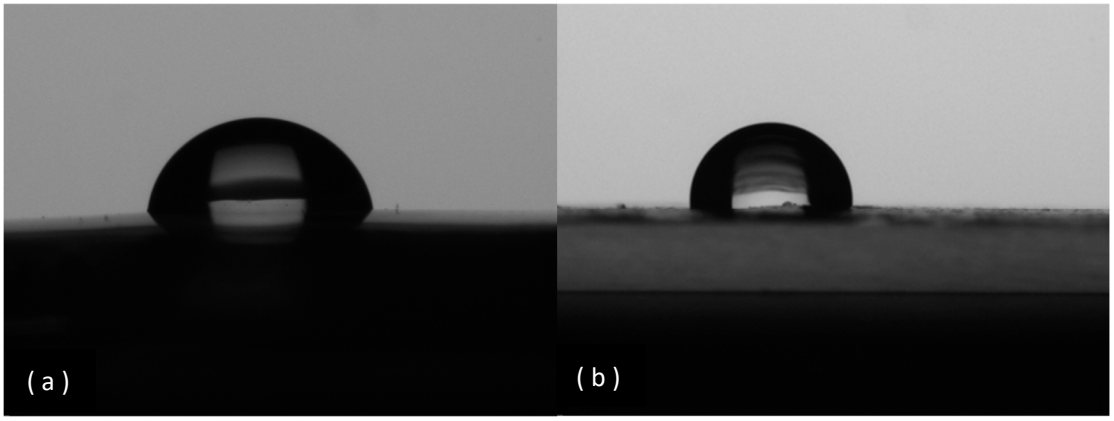

Figure S6. The contact angle images of the polymer film initiated by photoinitiator; (a): TX-B (81.8º); (b): STX, [STX] = 6×10^{-5} mol/g, (102.3º).

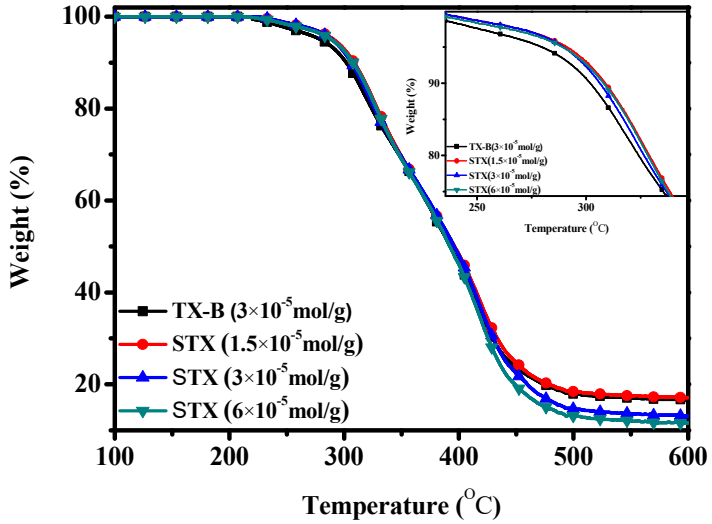

Figure S7. TGA curves of polymer films initiated by TX-B and STX.

Table S1. The thermal data of TX-B and STX.

PI	Temperature		Char (%)
	T_5 (ºC)	T_{50} (ºC)	
TX-B	273	326	0.01
STX	229	373	1.29

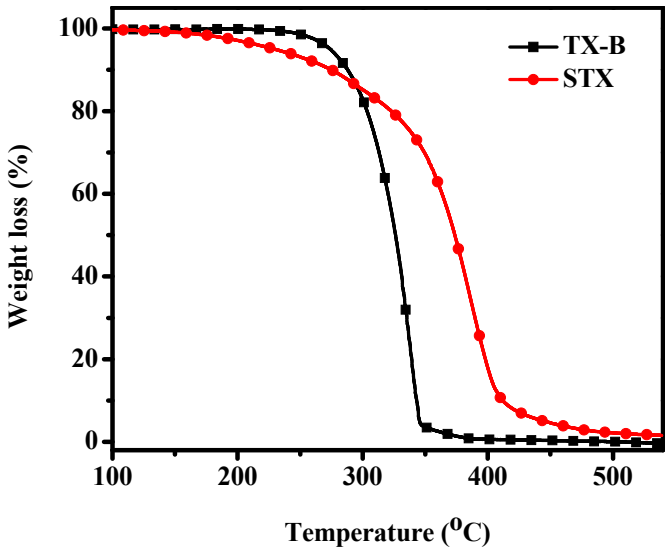

Figure S8. TGA curves of TX-B and STX.

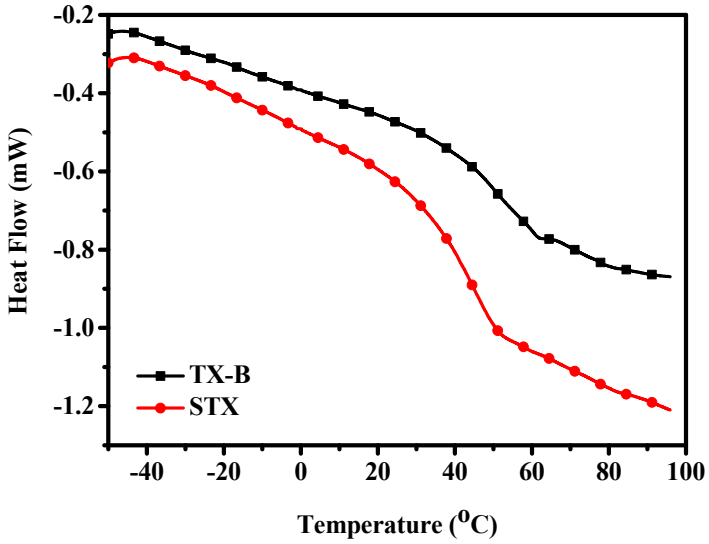

Figure S9. DSC curves of cured PUA films initiated by TX-B and STX ([TX-B] = 3×10^{-5} mol g^{-1}, [STX] = 3×10^{-5} mol g^{-1}). [STX] refers to the molar concentration of the ATX moiety.