Electronic Supplementary Material (ESI) for Green Chemistry.

Supporting Information

Biobased and Degradable Thiol-Ene Networks from Levoglucosan for Sustainable 3D Printing

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Figure S17. Oscillatory amplitude sweeps of TALG-poly3SH-1 and TALG-poly3SH-1 with 14 wt.% fumed silica, showing transformation from low viscosity Newtonian fluid to yield stress fluid, with solid-like structure at low shear stresses, with the addition of fumed silica

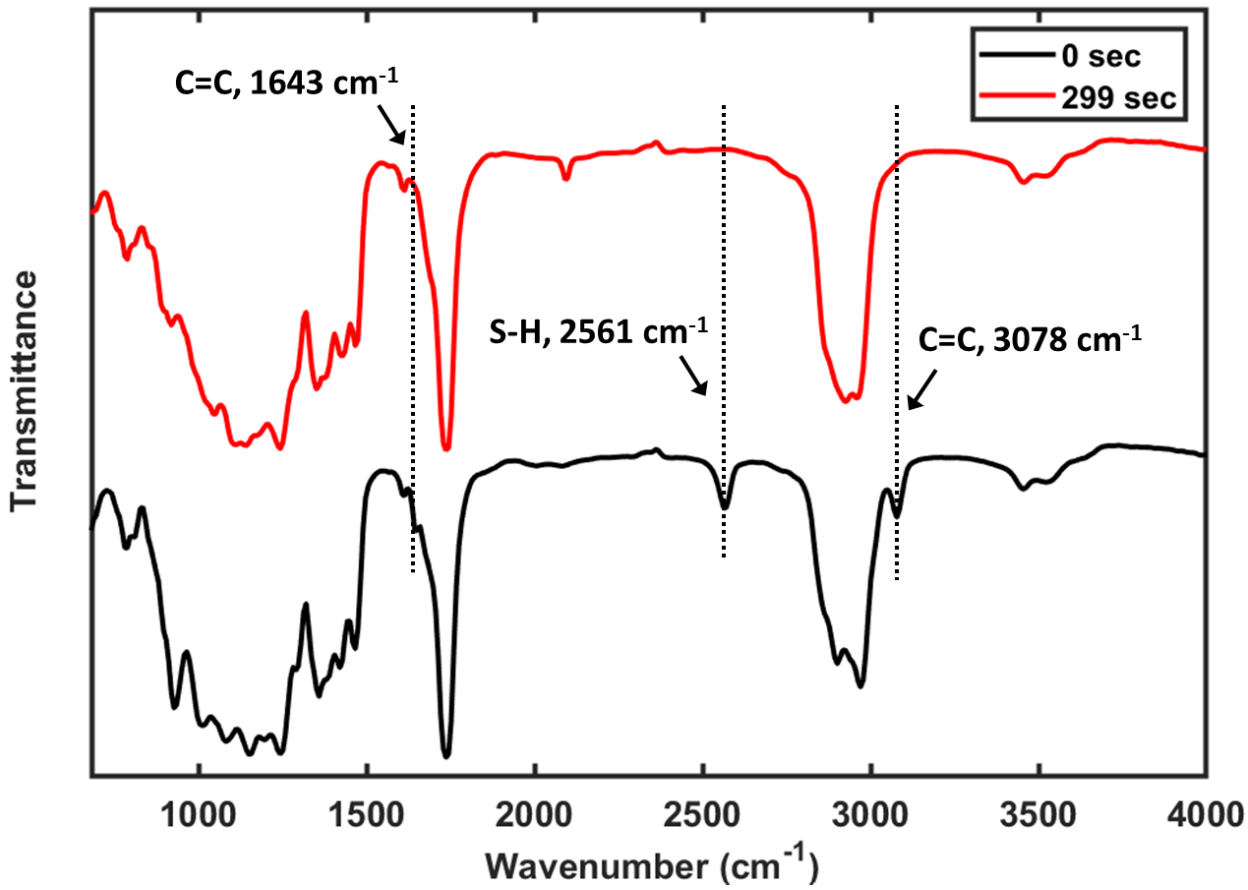


Figure S1. FTIR spectra of TALG-3SH-0.5 at 0 sec (before UV irradiation) and after UV irradiation for 299 sec.

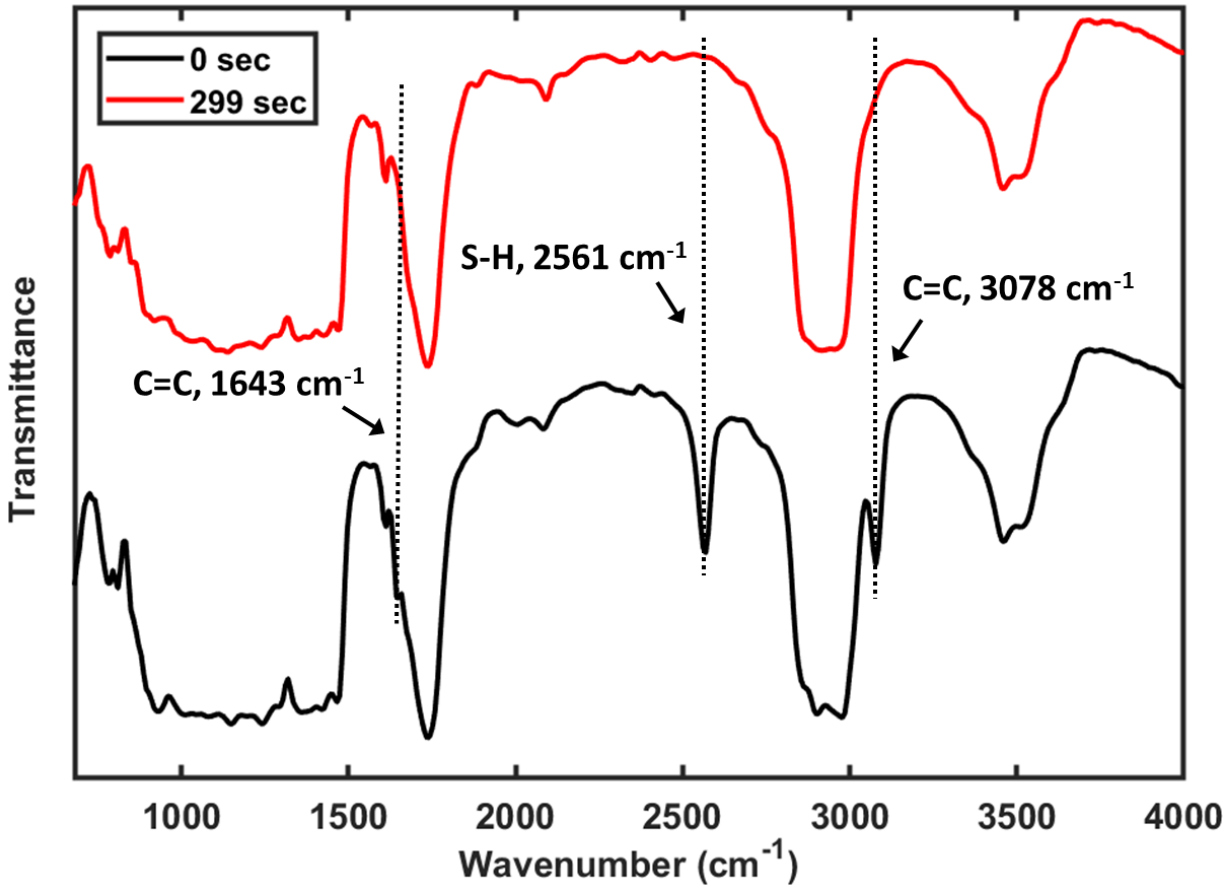


Figure S2. FTIR spectra of TALG-4SH-0.5 at 0 sec (before UV irradiation) and after UV irradiation for 299 sec.

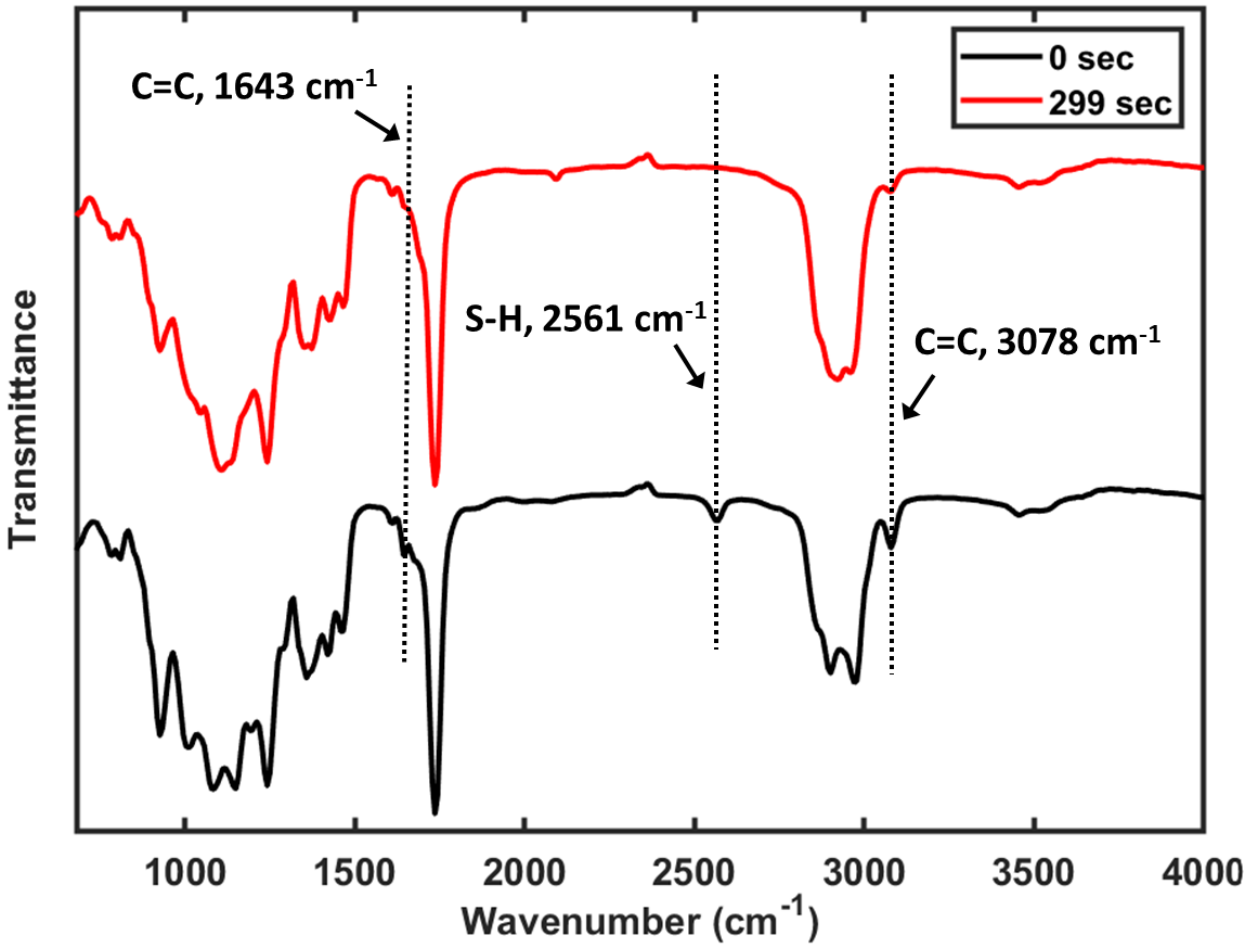


Figure S3. FTIR spectra of TALG-2SH-1 at 0 sec (before UV irradiation) and after UV irradiation for 299 sec.

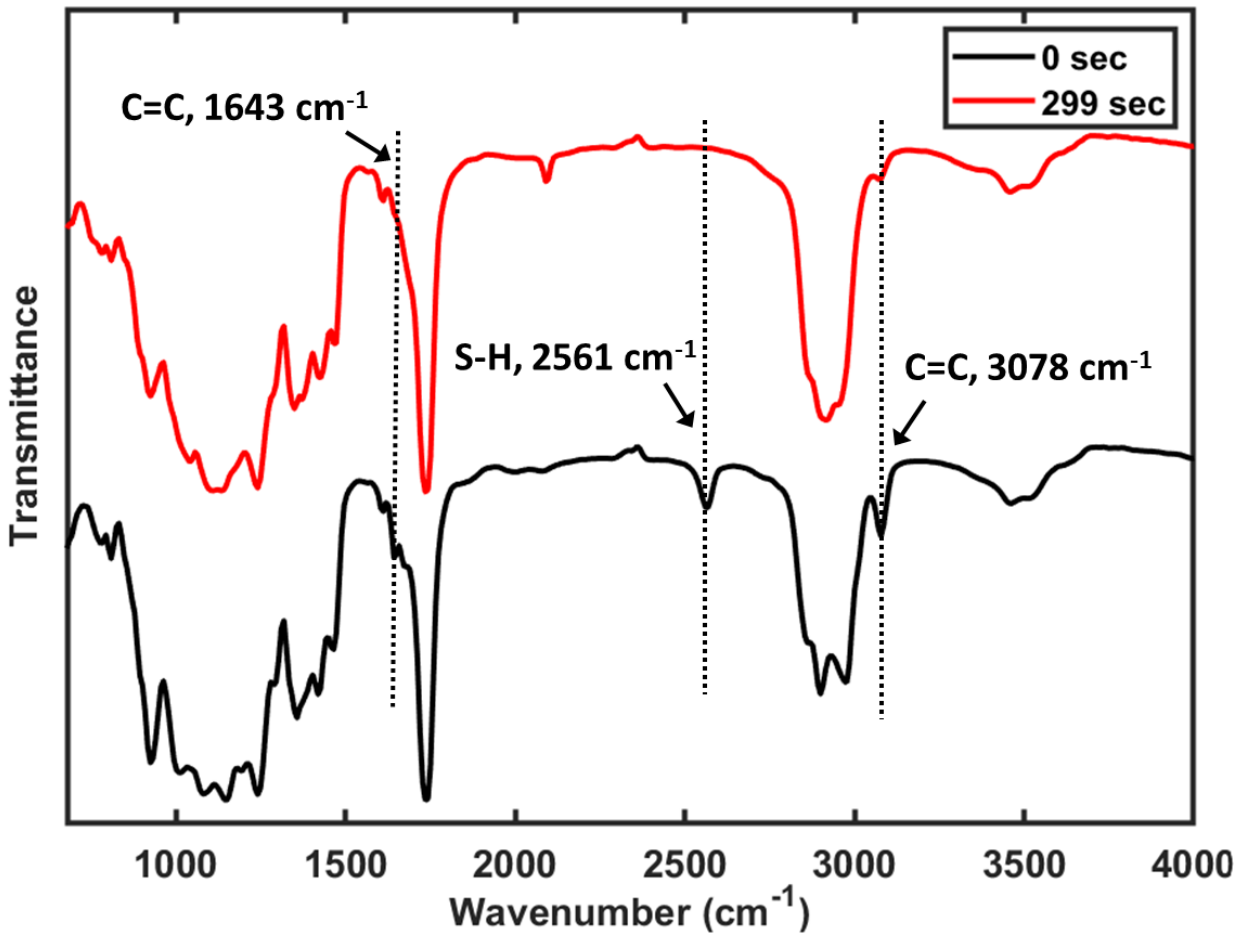


Figure S4. FTIR spectra of TALG-3SH-1 at 0 sec (before UV irradiation) and after UV irradiation for 299 sec.

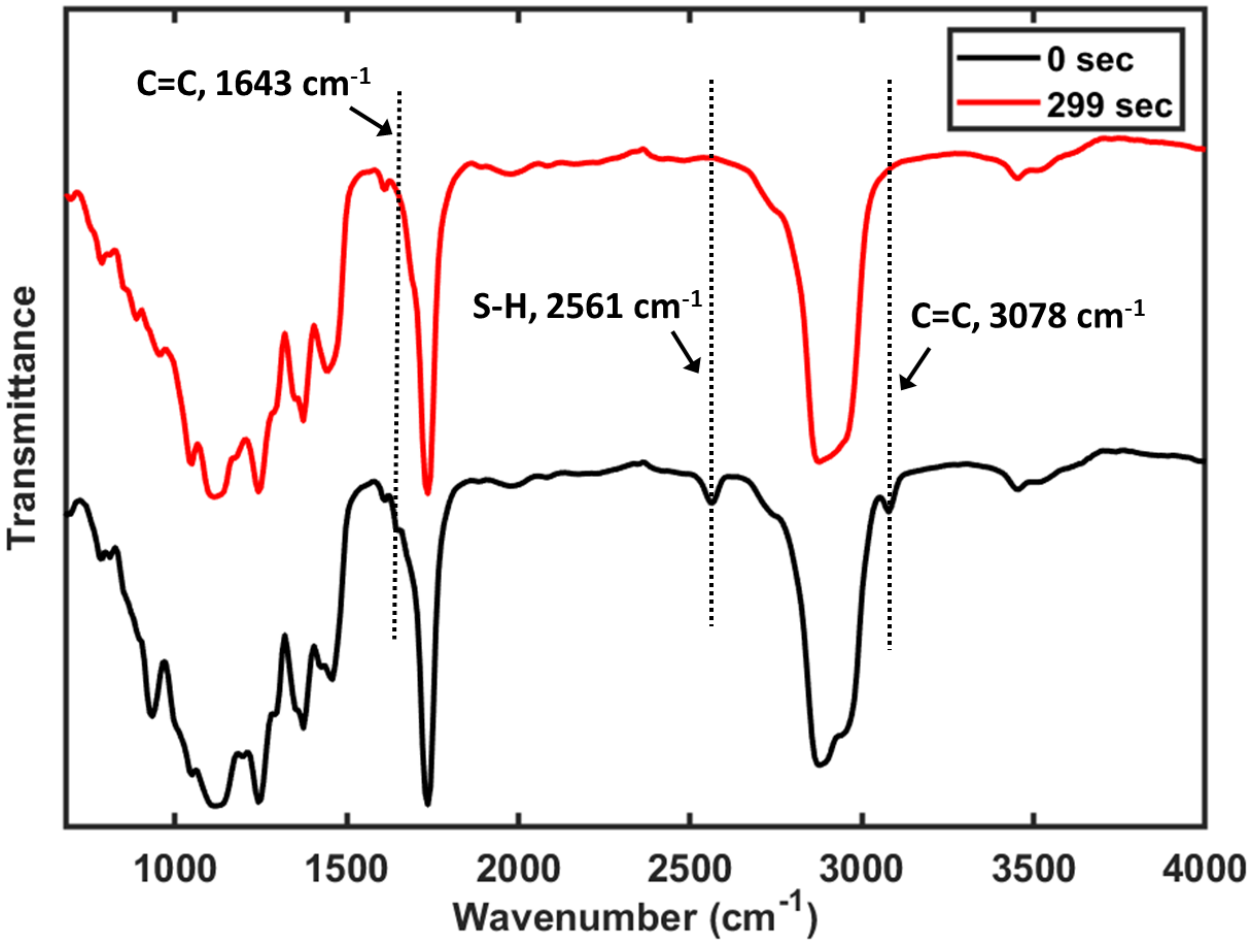


Figure S5. FTIR spectra of TALG-poly3SH-1 at 0 sec (before UV irradiation) and after UV irradiation for 299 sec.

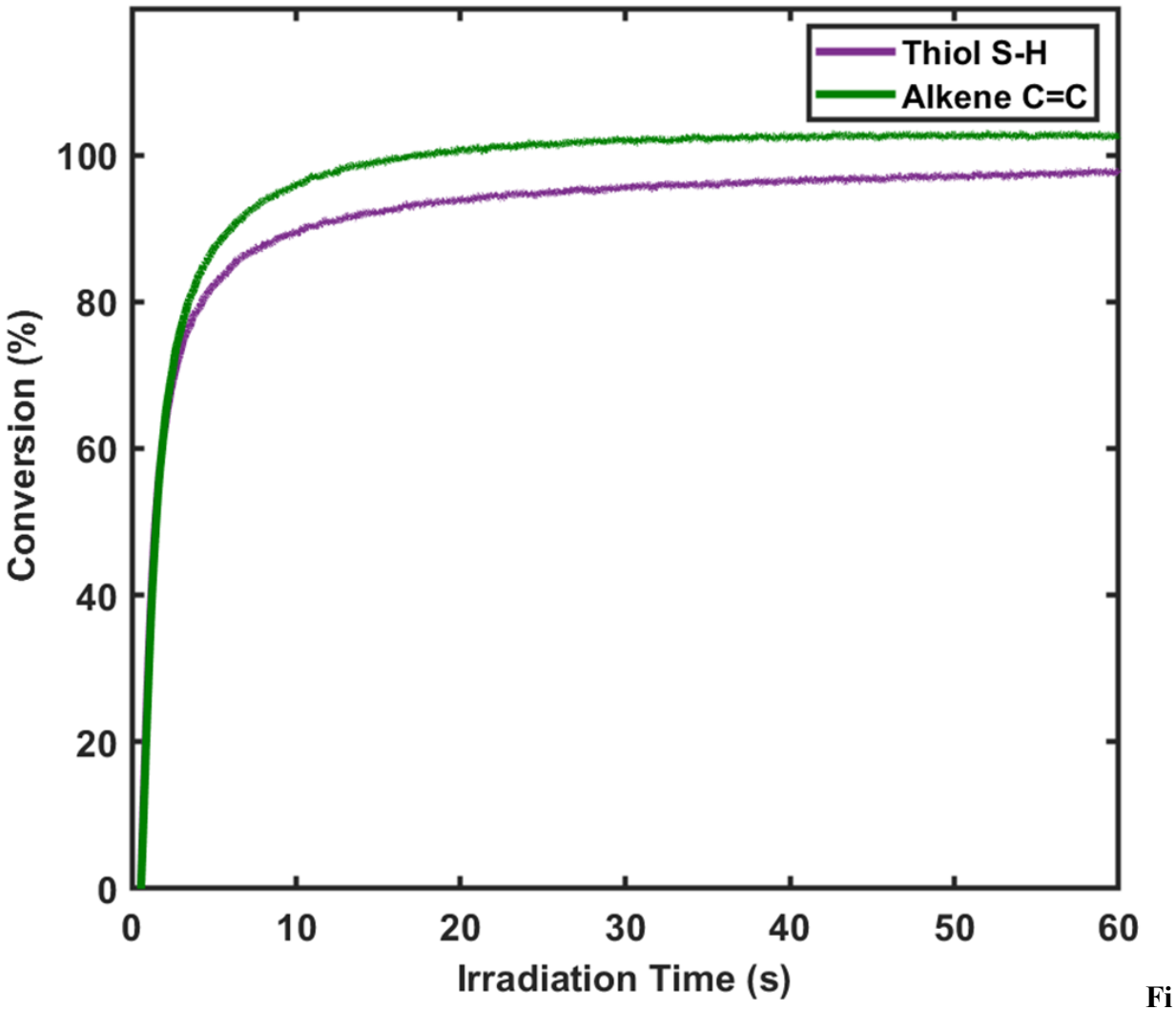


Figure S6. Conversion of alkene and thiol for TALG-3SH-0.5.

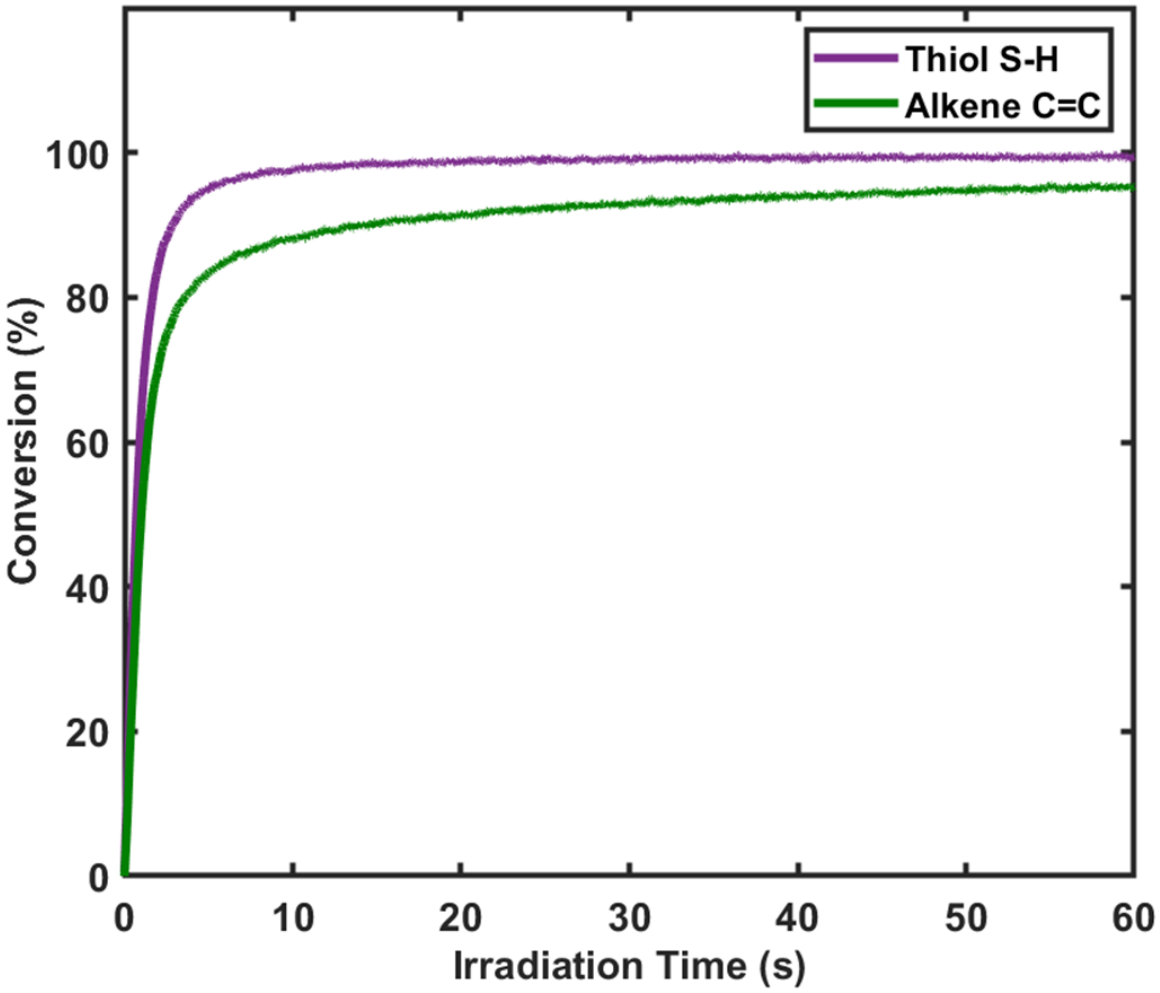


Figure S7. Conversion of alkene and thiol for TALG-3SH-1.

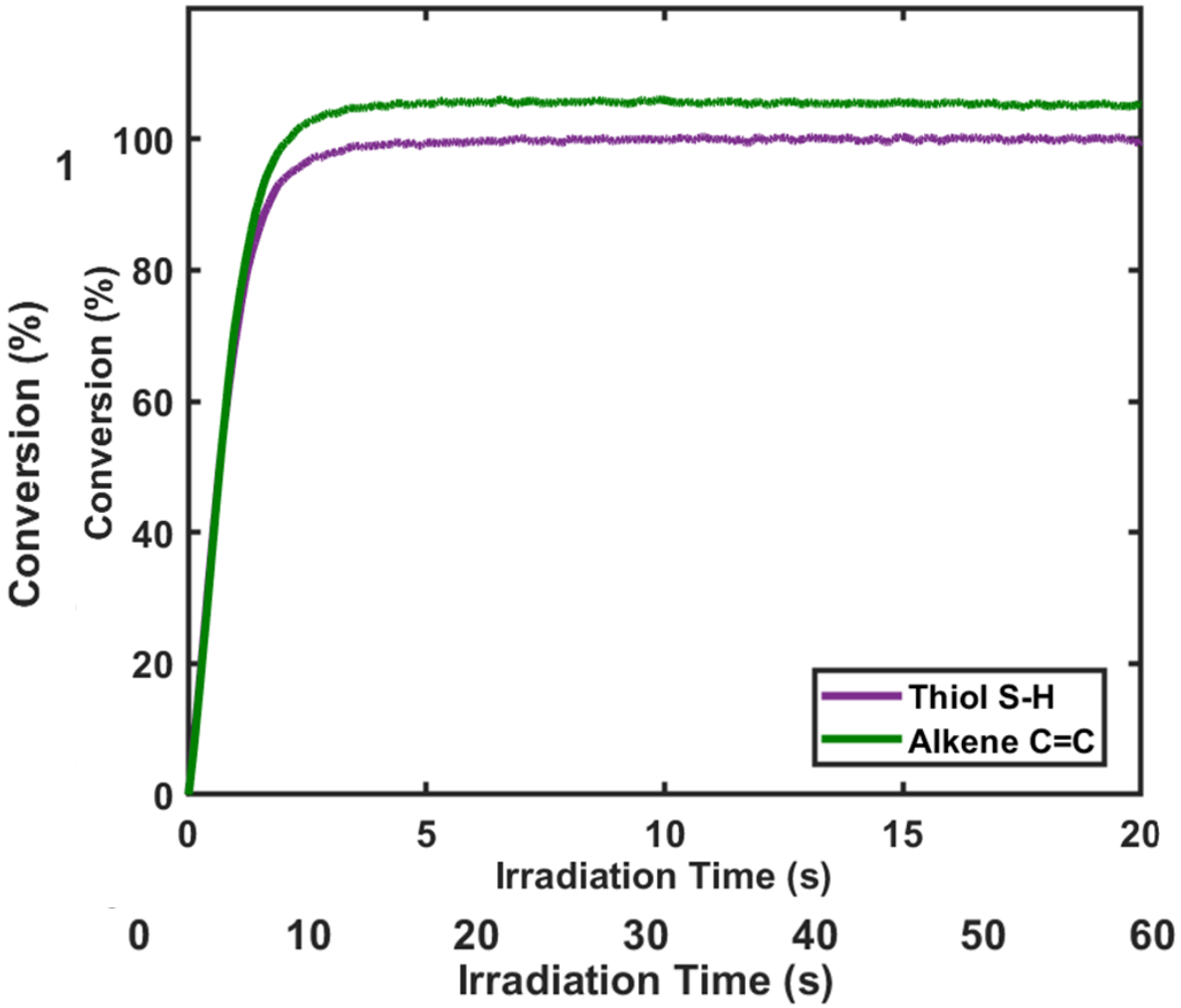


Figure S8. Conversion of alkene and thiol for TALG-2SH-1.

Figure S9. Conversion of alkene and thiol for TALG-poly3SH-1.

Comment [MP]: Revised Figure S10

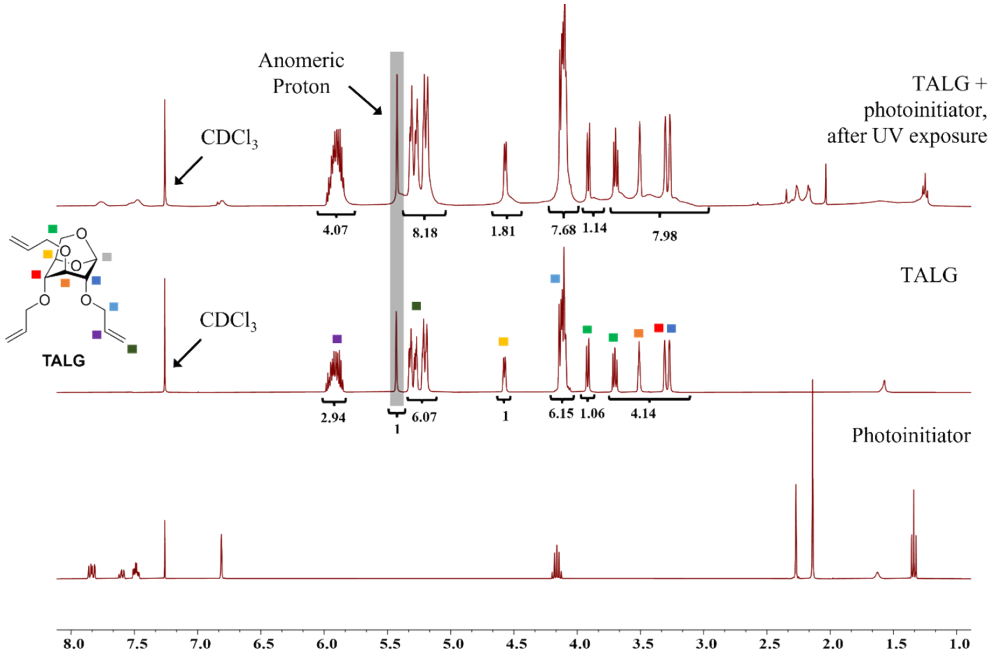


Figure S10. ^{1}H NMR spectrum of the UV-irradiated TALG-photoinitiator mixture in $CDCl_3$.

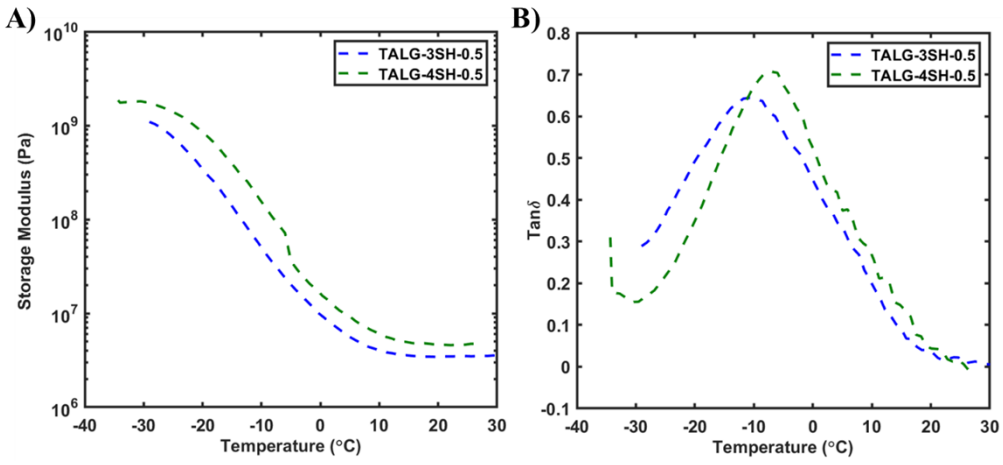


Figure S11. DMA curves depicting A) storage modulus B) tan δ for 0.5:1 thiol:ene networks.

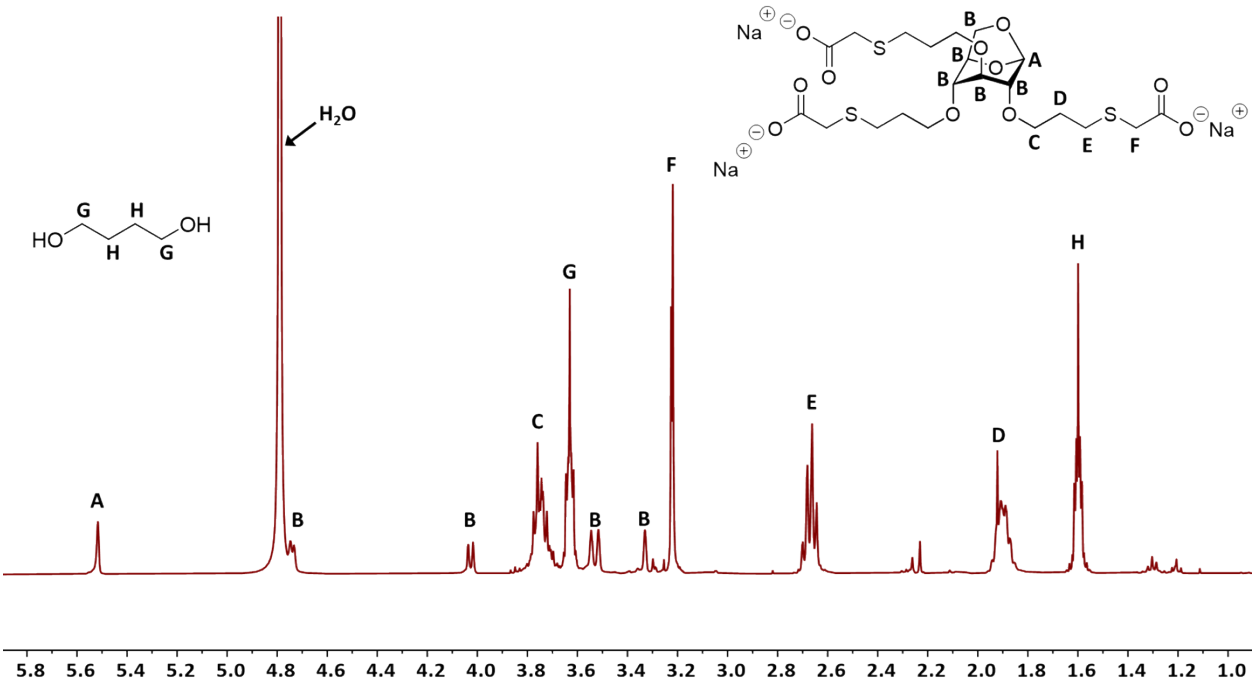


Figure S12. ^{1}H NMR spectrum of the degradation products from TALG-2SH-1 in D_2O.

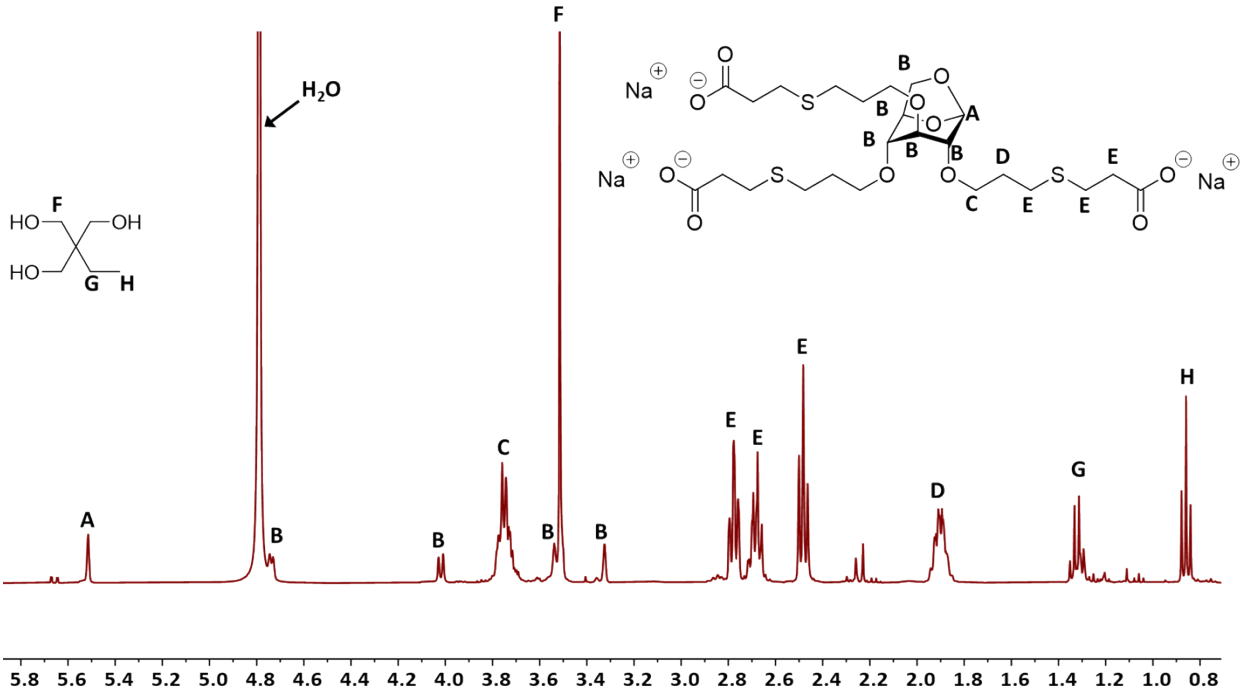


Figure S13. ^{1}H NMR spectrum of the degradation products from TALG-3SH-1 in D_2O.

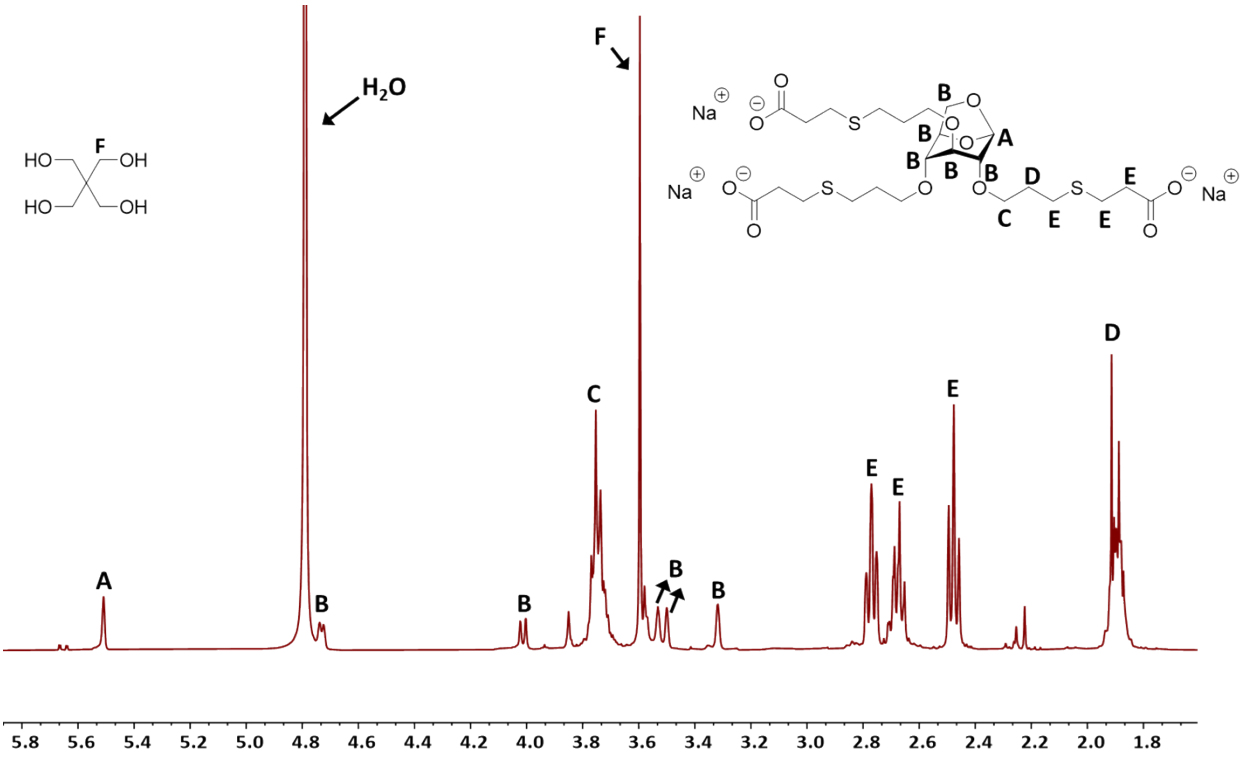


Figure S14. ^{1}H NMR spectrum of the degradation products from TALG-4SH-1 in D_2O.

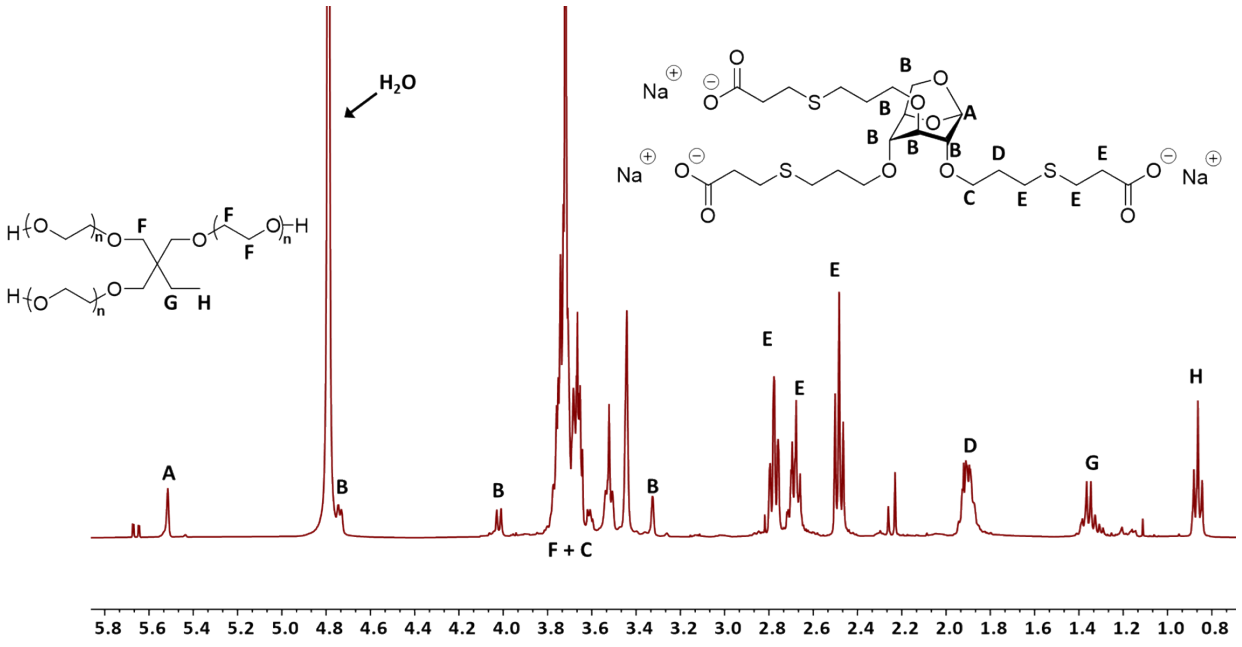
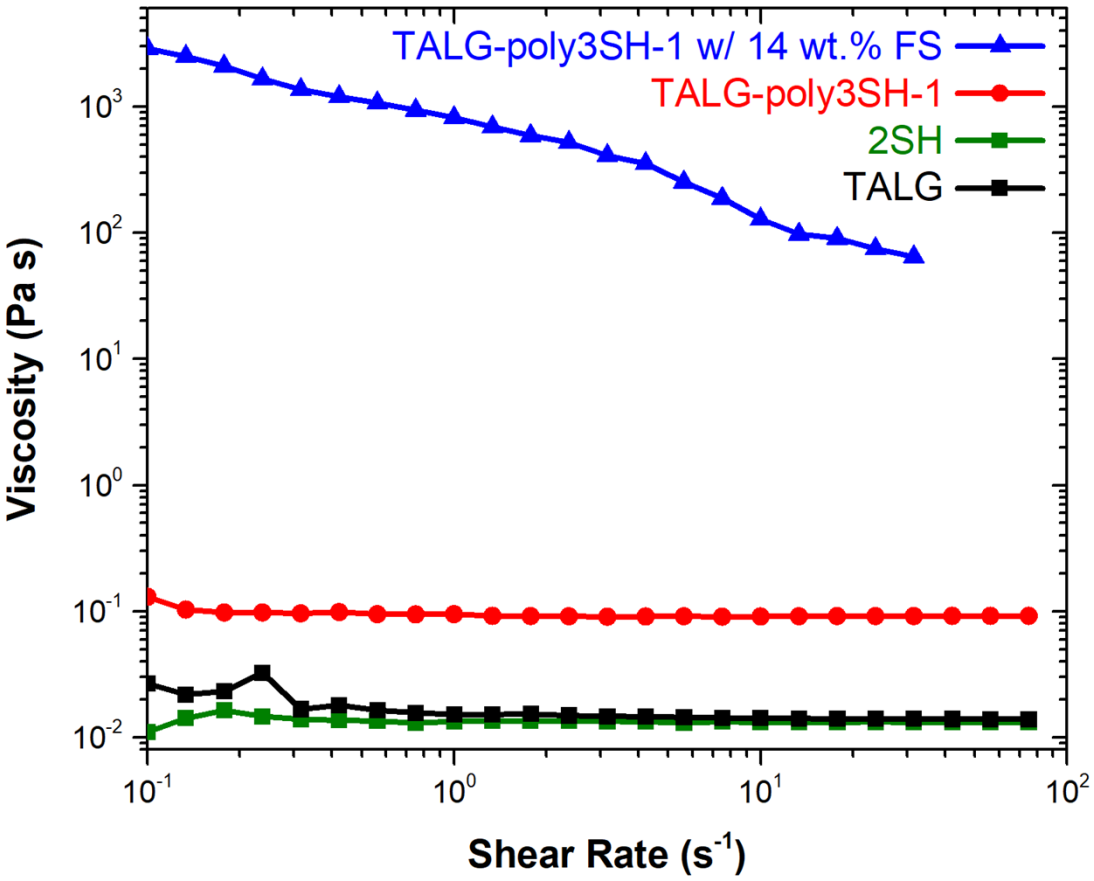


Figure S15. ^{1}H NMR spectrum of the degradation products from TALG-poly3SH-1 in D_2O.


TALG-poly3SH-1 w/ 14 wt.% FS
TALG-poly3SH-1
2SH
TALG
Viscosity (Pa s)
Shear Rate (s-1)
10-2
10-1
100
101
102
103

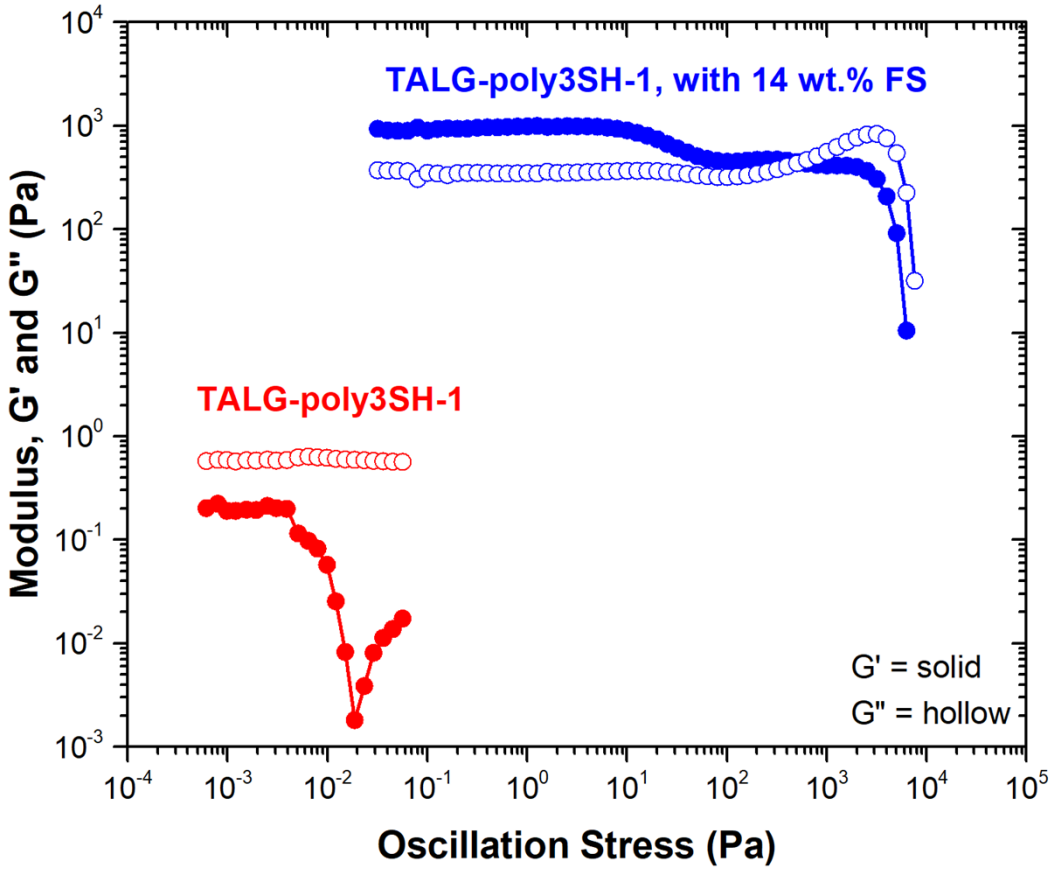


Figure S16. Viscosity curves for TALG, TALG-poly3SH-1 (without Silica), and TALG-poly3SH-1 (with Silica).

Figure S17. Oscillatory amplitude sweeps of TALG-poly3SH-1 and TALG-poly3SH-1 with 14 wt.% fumed silica, showing transformation from low viscosity Newtonian fluid to yield stress fluid, with solid-like structure at low shear stresses, with the addition of fumed silica