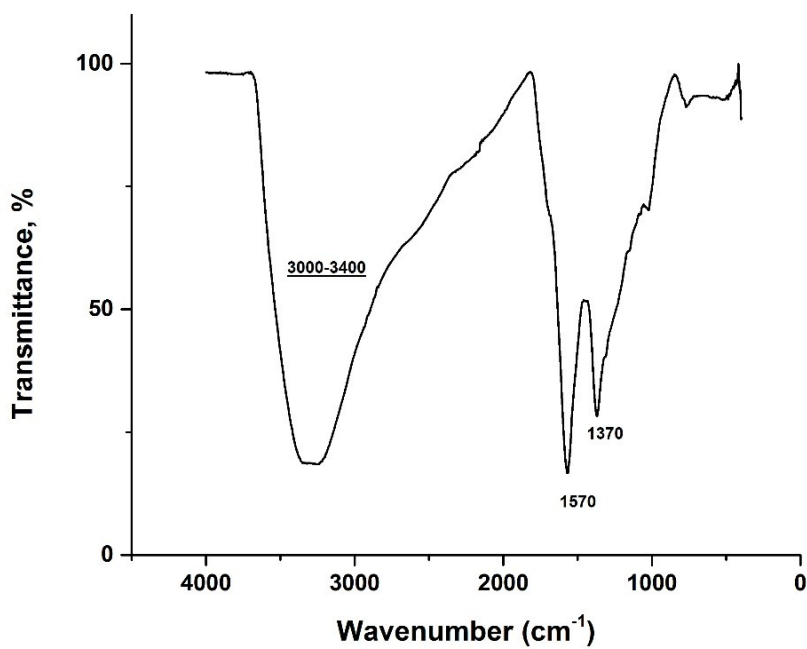
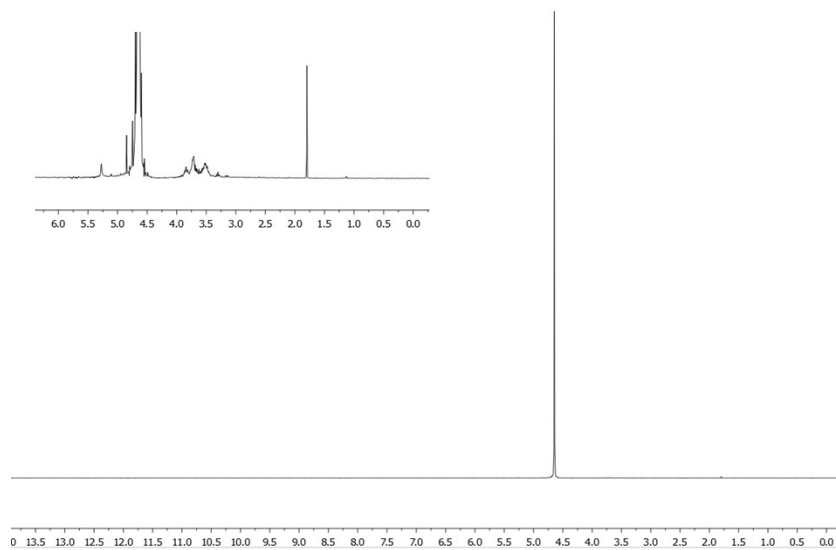
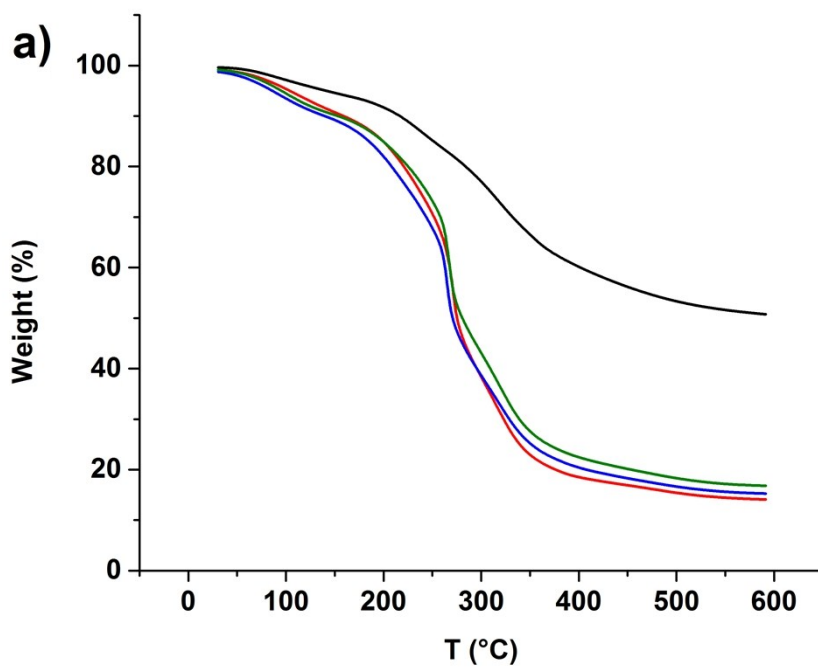


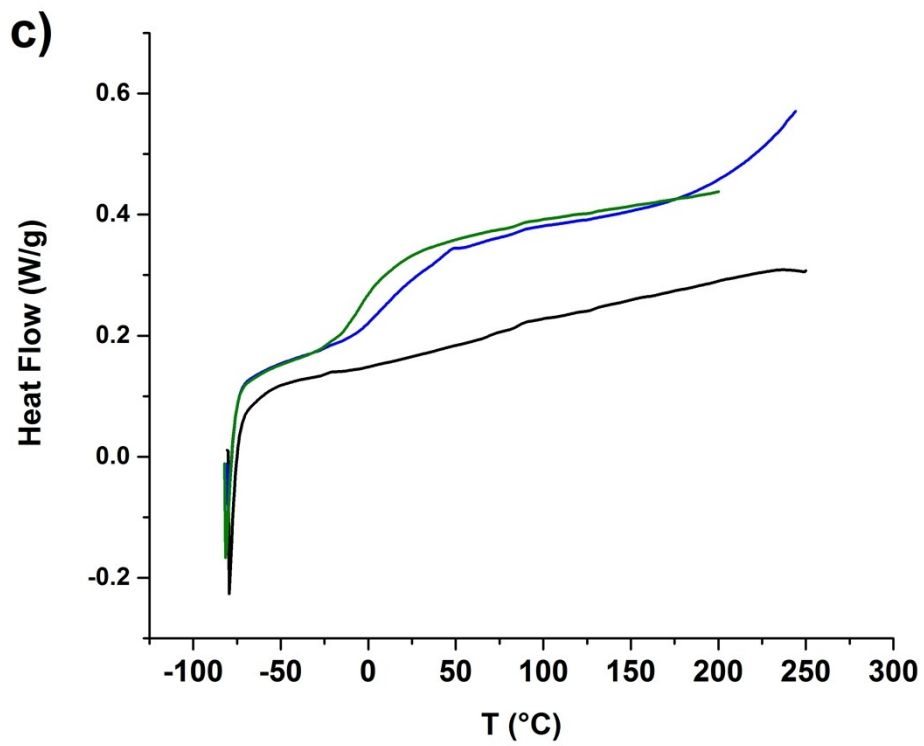
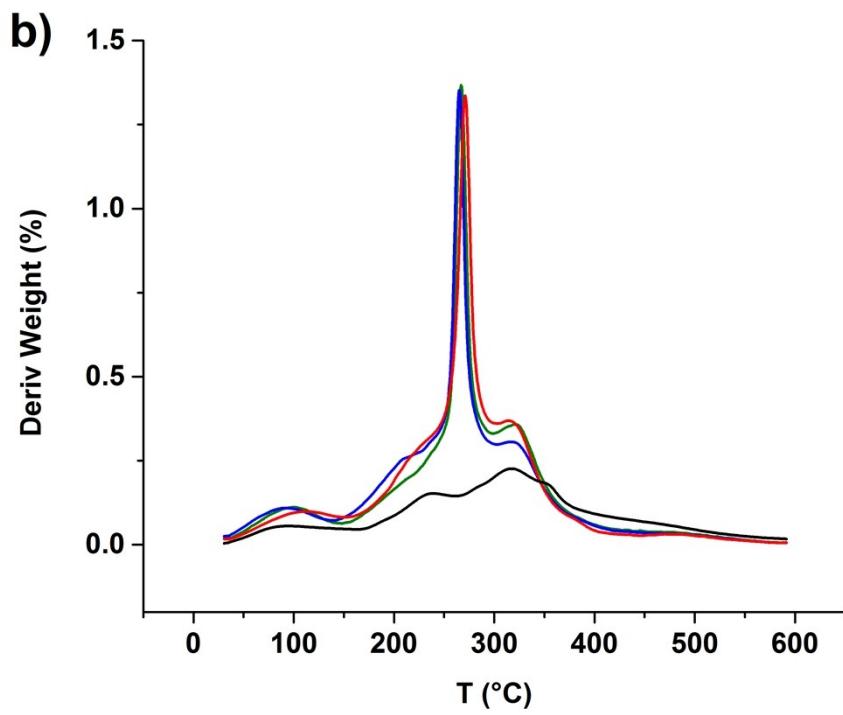
SUPPORTING INFORMATION

Supplementary data file 1. $^1\text{H-NMR}$ [DHO, 400 MHz] and FTIR-ATR spectra for PGAL.

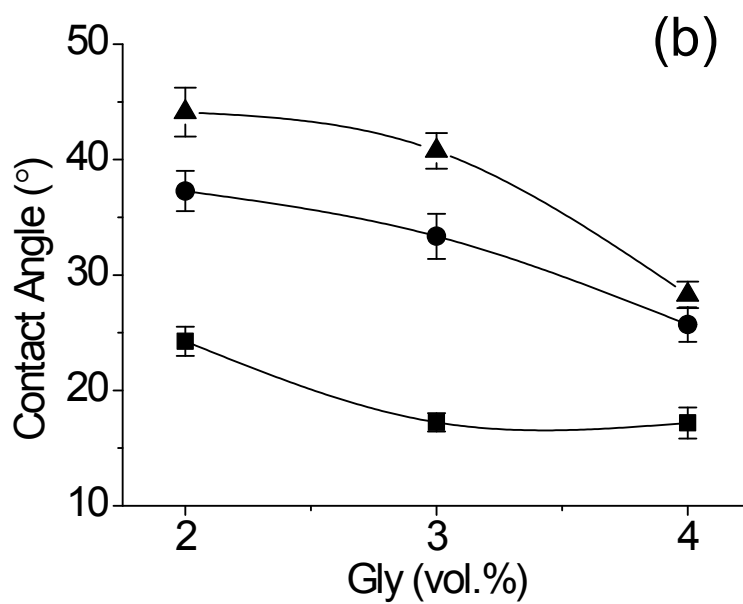
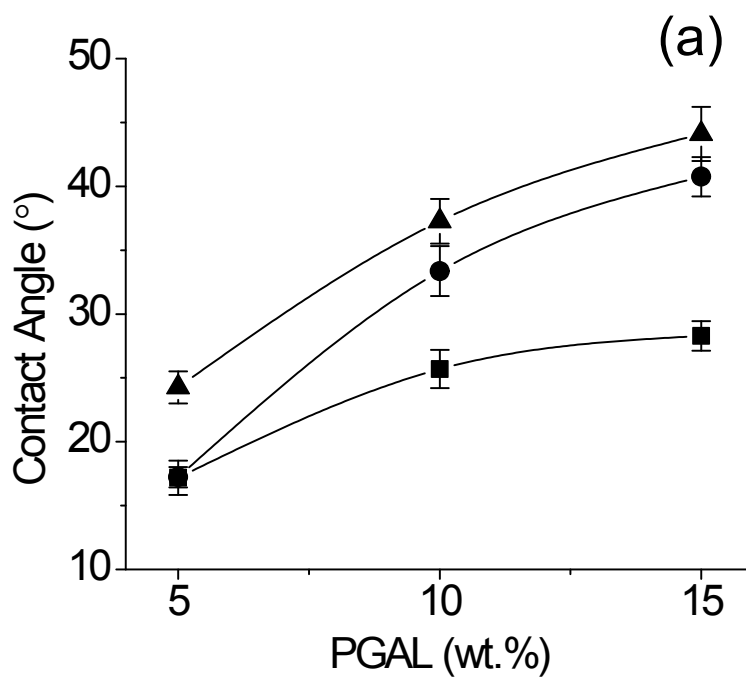


Supplementary data file 2. Thermal properties of the PGAL-CMC films. a) TGA, b) derivatives of thermal degradation, and c) Tg from second heating. Black line (PGAL), red line (entry 9), blue line (entry 5) and green line (entry 1).





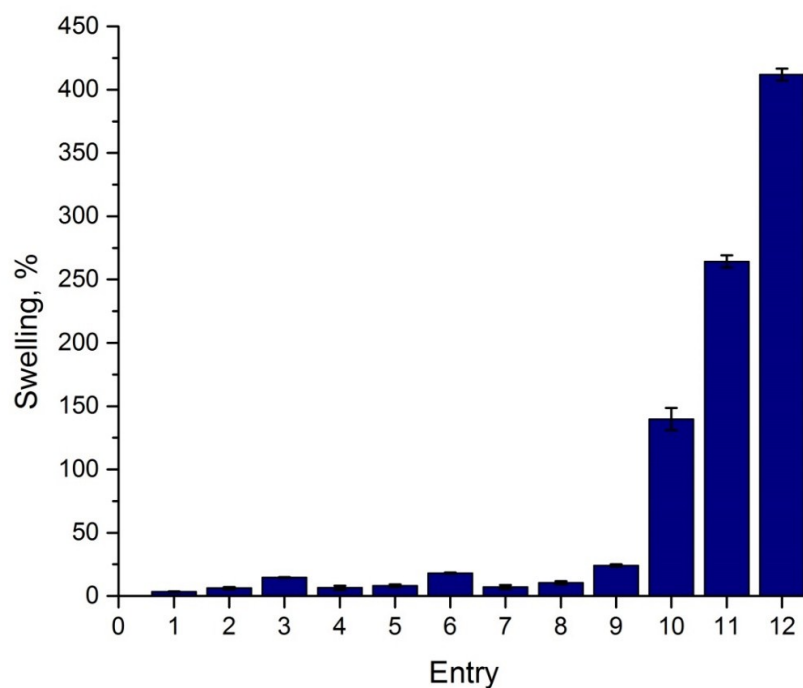
Supplementary data file 3. Contact angle vs PGAL concentration relation at different glycerol (vol %) concentrations 2% (■), 3% (⊗) and 4% (●) (a); and Contact angle vs Glycerol concentration at different PGAL (wt%) feed 5% (●), 10% (⊗) and 15% (■) (b).



Supplementary data file 4. Table of the equilibrium swelling ratio and polymer volume fraction at swelling equilibrium for entry samples in Table 1.

Entry	Equilibrium swelling ratio, Q_m	Polymer volume fraction at swelling equilibrium, v_{2m}
1	1.69	0.59
2	1.68	0.60
3	1.87	0.54
4	1.37	0.73
5	1.30	0.77
6	2.07	0.48
7	2.55	0.39
8	1.07	0.93
9	2.50	0.40
10	6.40	0.16
11	7.02	0.14
12	6.61	0.15

Effect of crosslinking on swelling ratio of polymer matrices. Swelling in deionized H₂O at room temperature.



Supplementary data file 5. Measured elongation for each entry in Table 1.

