Using Gel Morphology to Control Pore Shape

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Supplementary Information

A. Additional SEM images

Samples for SEM imaging were applied directly to silicon wafer chips (Agar Scientific) using a cocktail stick for gels or a pipette for liquids. Solid samples of polymer were stuck onto the wafers using carbon conductive adhesive tape. Samples were stored under vacuum at $1x10^{-5}$ mbar then sputter coated with 5nm platinum in a Cressington 328 coating unit, at 40 mA (density 21.09 and tooling set at 1) with rotation and a 300 angle of tilt. Samples were imaged using a Hitachi S-5200 field emission scanning electron microscope at 1.5 kV.

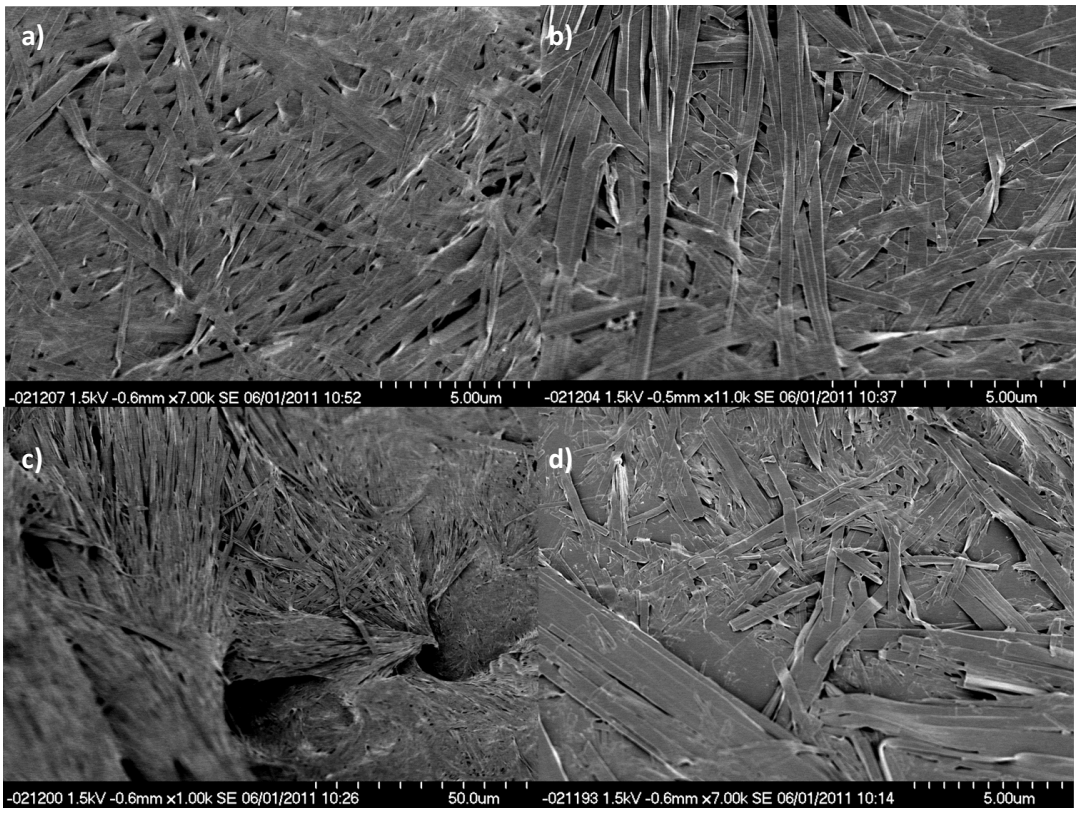

Figure S1 SEM images of xerogels formed from a) 2 wt%, b) 5 wt%, c) 10 wt% and d) 20 wt%. of gelator **1** in 1:1 MMA:EGDMA

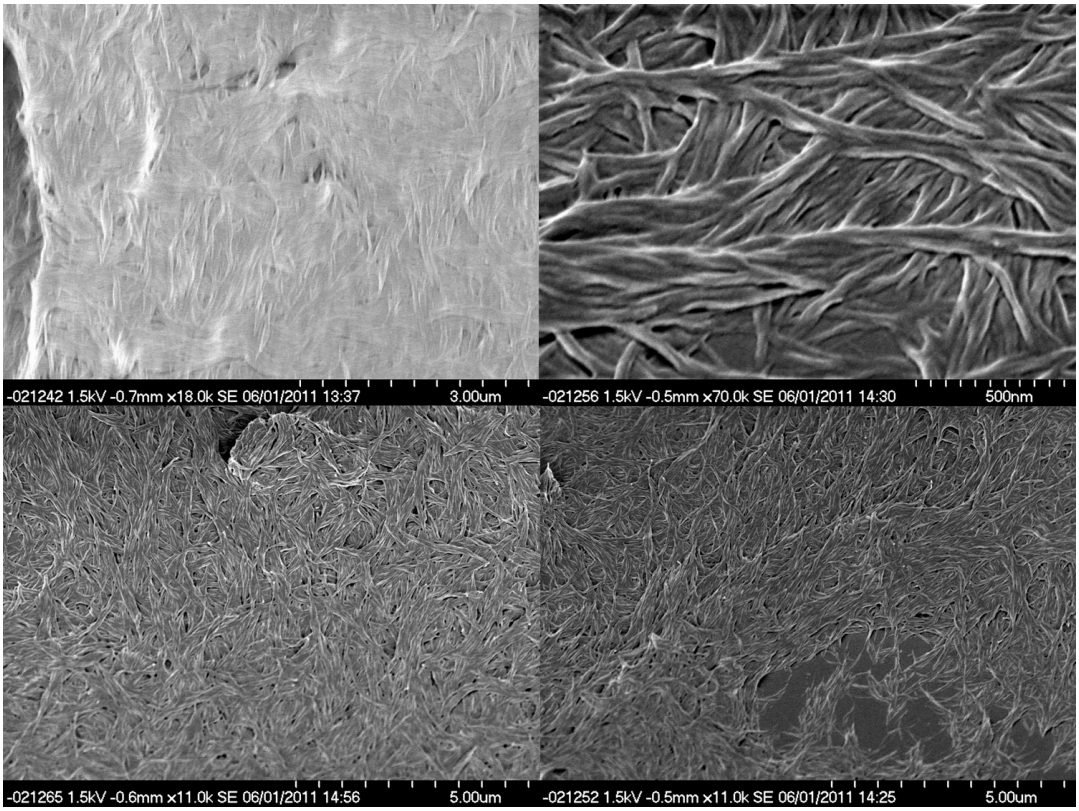

Figure S2 SEM images of xerogels formed from a) 2 wt%, b) 5 wt%, c) 10 wt% and d) 20 wt%. of gelator **1** in 1:1 MMA:EGDMA

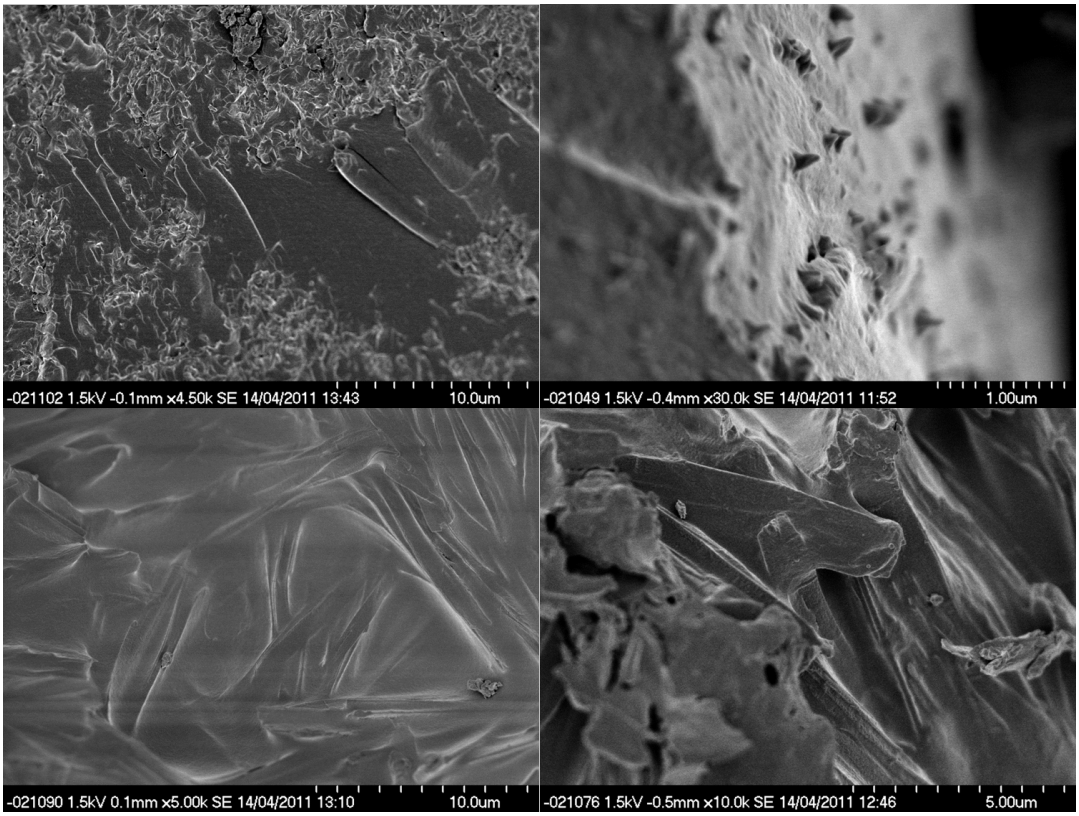

Figure S3 SEM images of composite gels formed from a) 2 wt%, b) 5 wt%, c) 10 wt% and d) 20 wt%. of gelator **1** in polymerised 1:1 MMA:EGDMA.

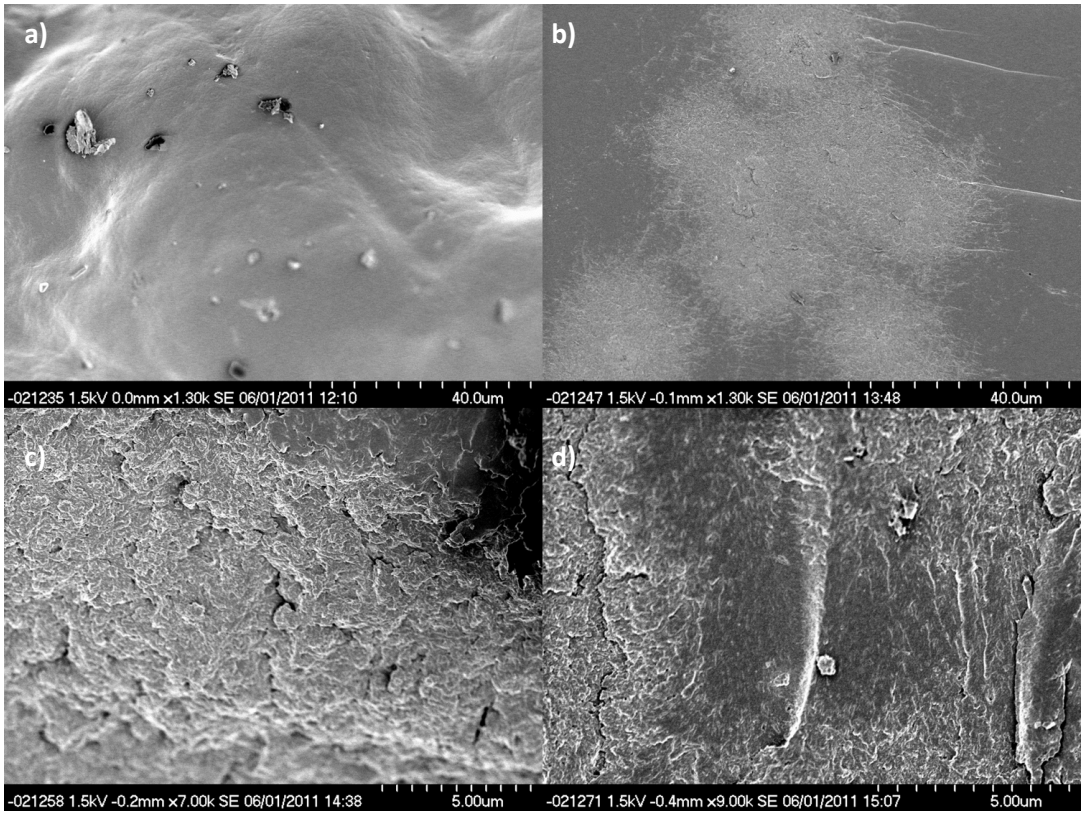

Figure S4 SEM images of composite gels formed from a) 2 wt%, b) 5 wt%, c) 10 wt% and d) 20 wt%. of gelator **2** in polymerised 1:1 MMA:EGDMA.

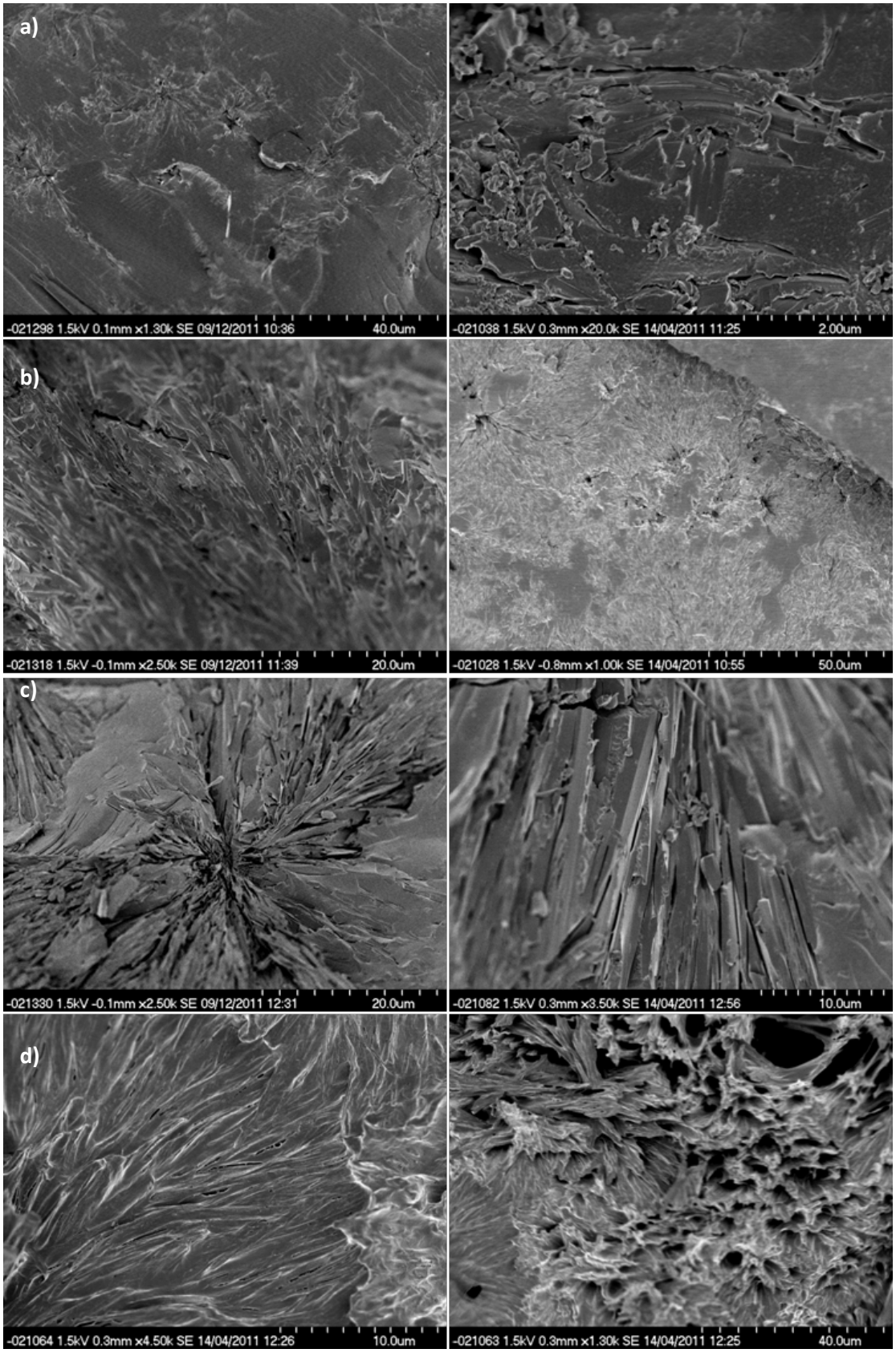

Figure S5 SEM images of washed polymers formed from a) 1 wt%, b) 5 wt%, c) 10 wt% and d) 20 wt%. of gelator **1** in polymerised 1:1 MMA:EGDMA.

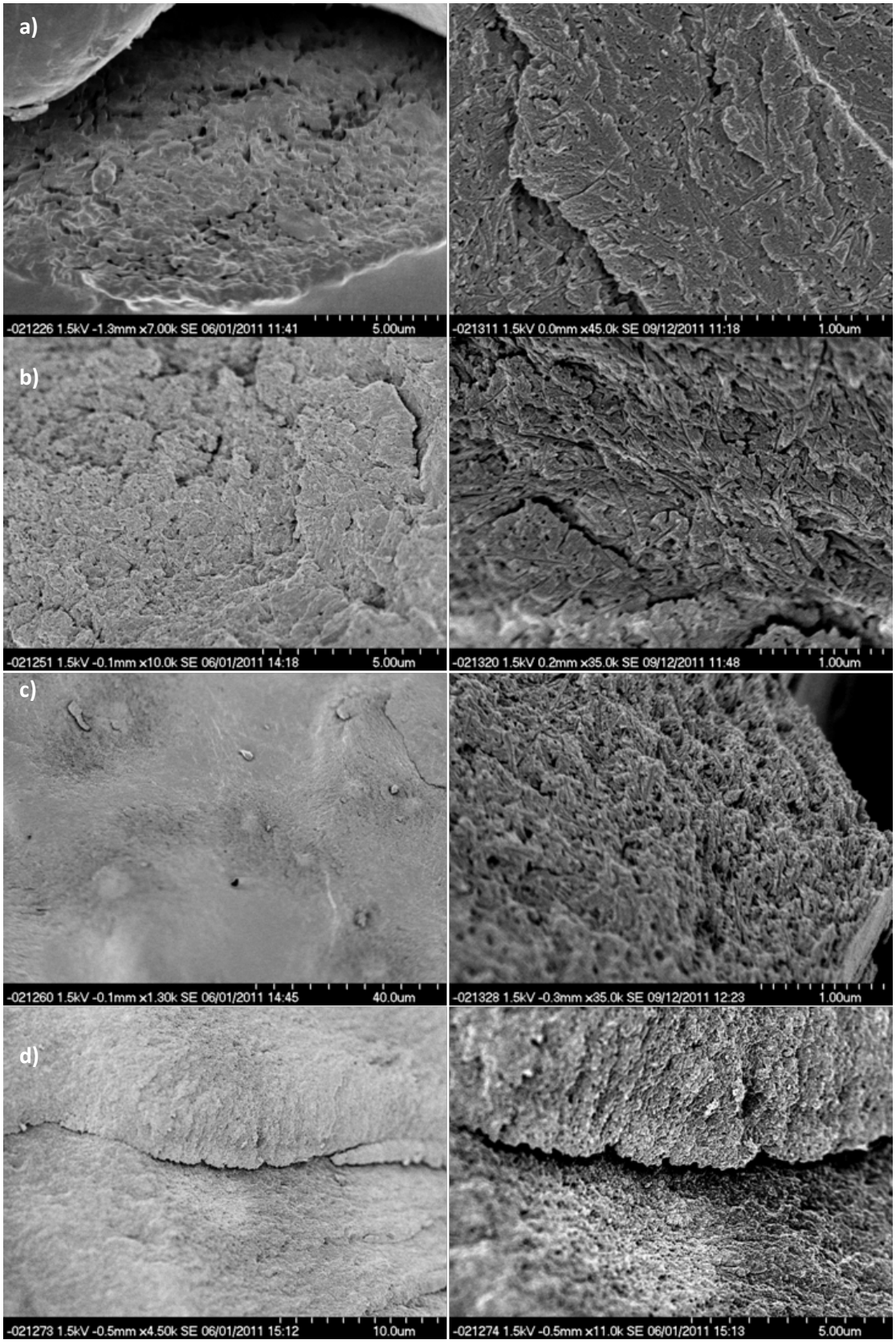

Figure S6 SEM images of washed polymers formed from a) 1 wt%, b) 5 wt%, c) 10 wt% and d) 20 wt%. of gelator **2** in polymerised 1:1 MMA:EGDMA following washing with methanol.

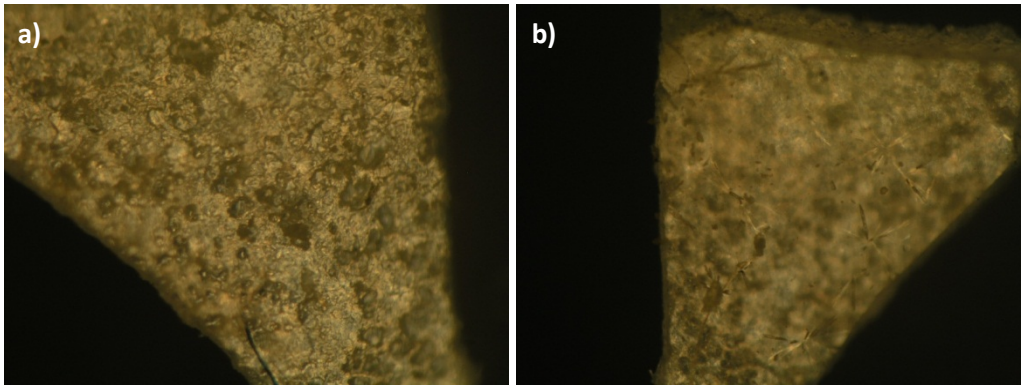

Figure S7 Optical microscopy images showing different faces of polymer sample a) rough face, b) smooth face

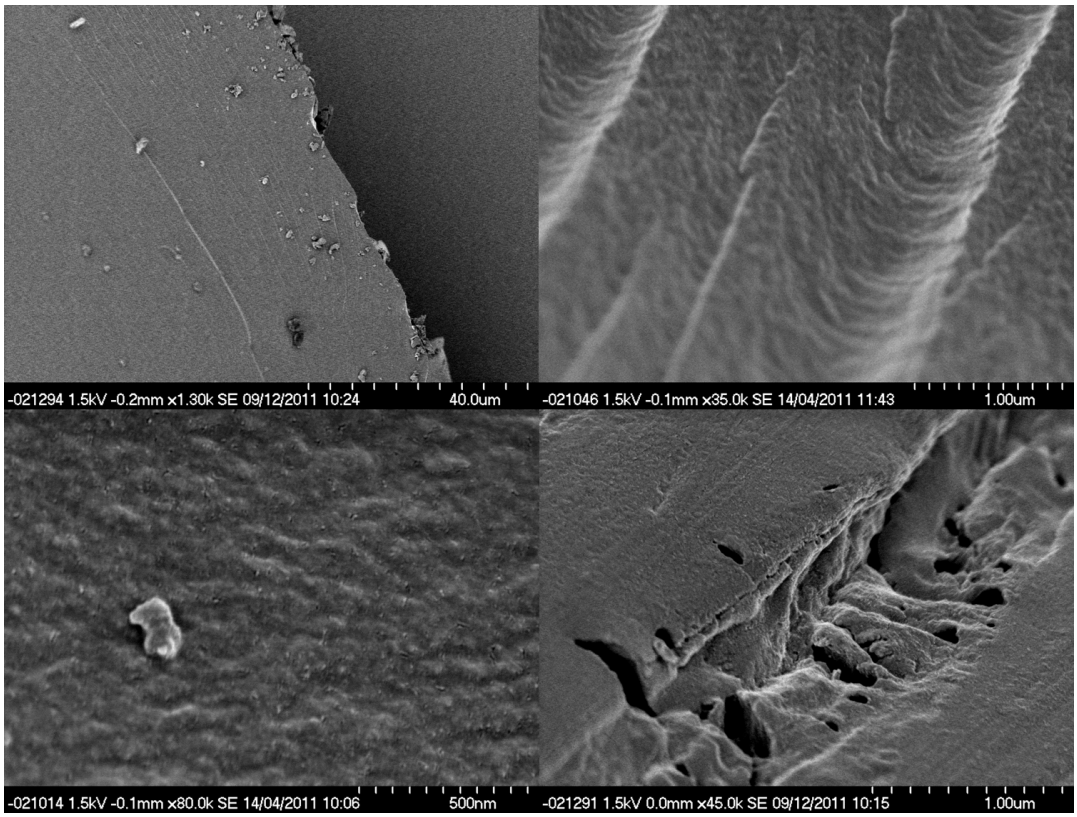

Figure S8 SEM images of control polymer formed from 1:1 MMA:EGDMA without gelator

B. Additional gas adsorption isotherms

The samples was added to a sample tube (1 inch diameter) and then degassed on the instrument (20°C) until a constant pressure was reached. The sample was then weighed (0.8-1.5 g) into the sample tube which was then fitted with a filler rod and isothermal jacket. Nitrogen sorption was then measured under isothermal conditions (77 K) between P/P^0 of 0.0500 to 0.9990 and desorption between 0.999 and 0.140.

BET and Langmuir plots were obtained from measurements at 0.050< P/P0 <0.2500; BJH adsorption and desorption plots were obtained at 0.1400< P/P^0 <0.990. Pore size distributions were obtained using the Faas modified BJH model with a Halsey thickness curve used for the 2 series and the Harkins Jura thickness curve used for the 1 series.

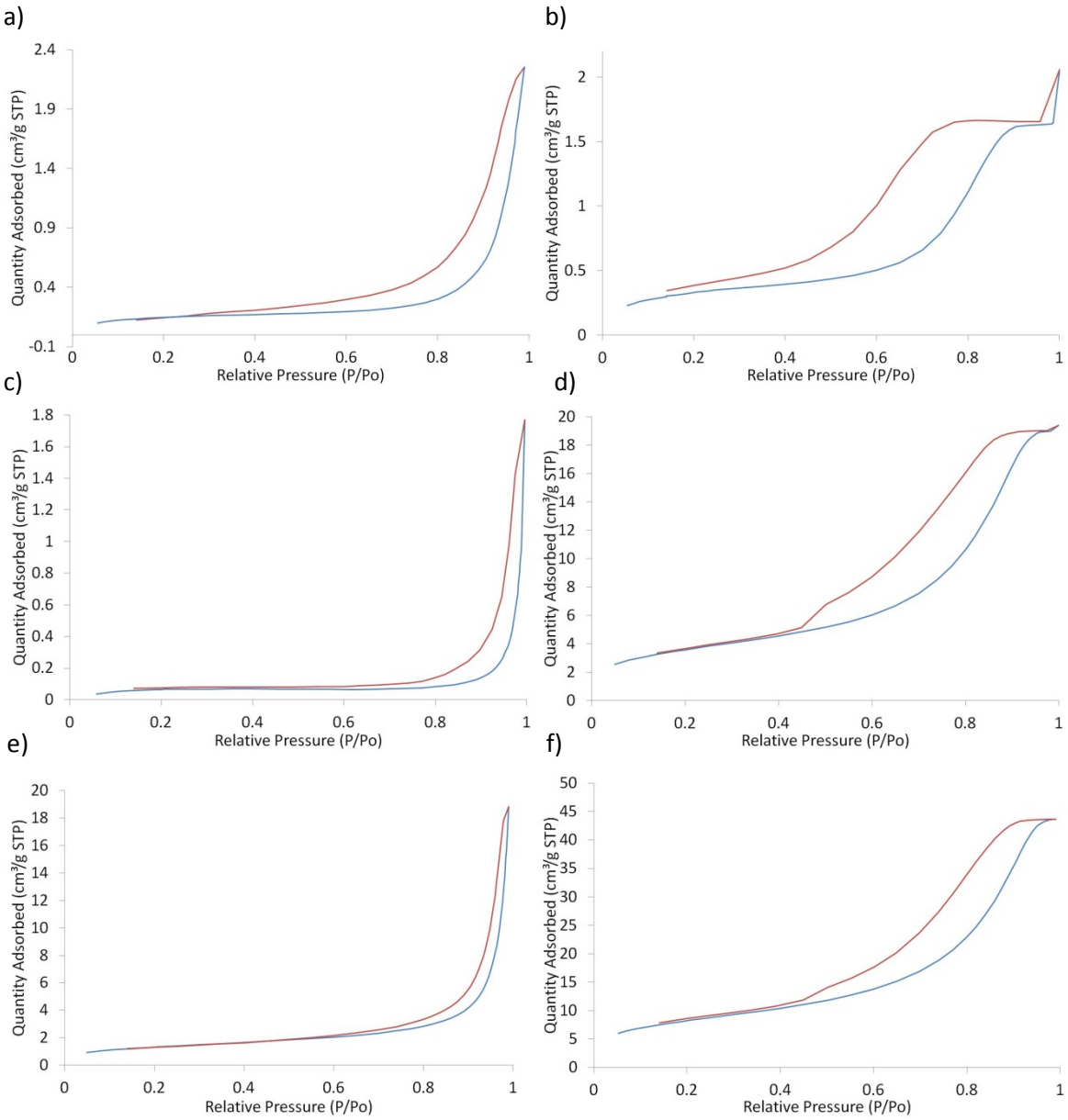

Figure S9 BET isotherms showing adsorption (blue) desorption (red) curves for washed polymer samples formed from a) 1 % w/v **1** b) 1 % w/v **2** c) 5 % w/v **1** d) 5 % w/v **2** e) 10 % w/v **1** f) 10 % w/v **2**

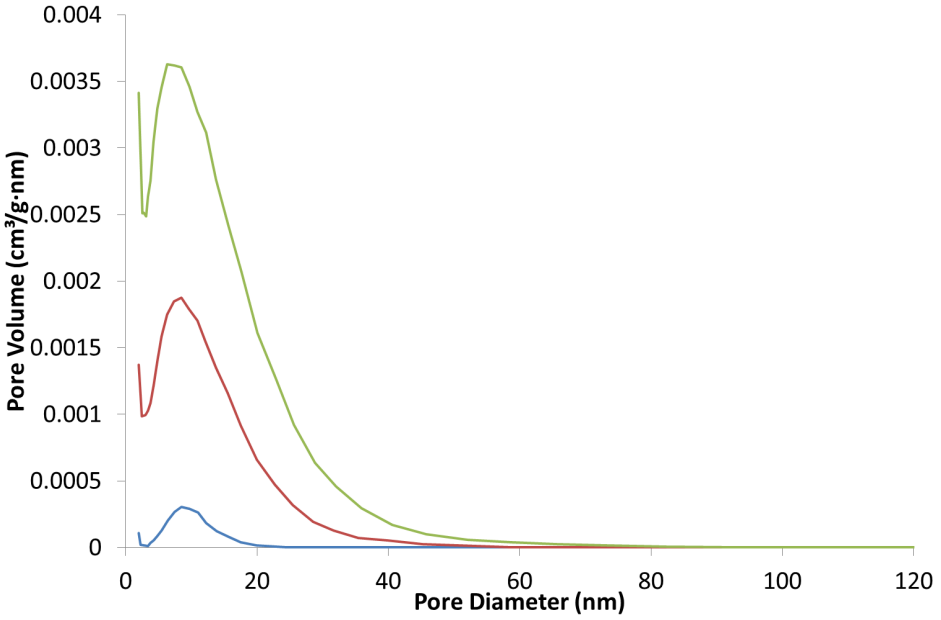

Figure S10 Pore size distribution calculated from the adsorption isotherm measured for washed polymer samples templated with **2**: 1 % w/v (blue), 5 % w/v (red), 10 % w/v (green).

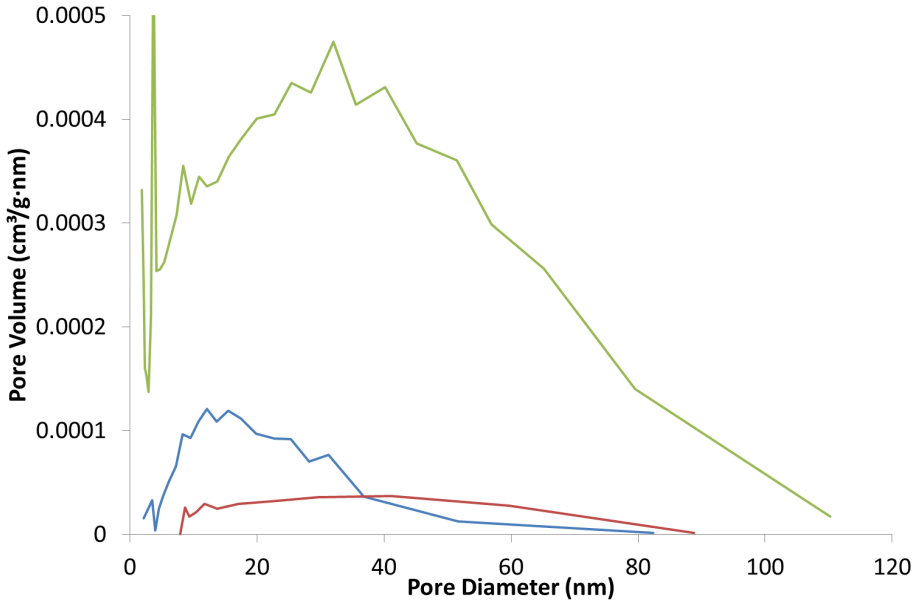

Figure S11 Pore size distribution calculated from the desorption isotherm measured for washed polymer samples templated with **1**: 1 % w/v (blue), 5 % w/v (red), 10 % w/v (green).