SUPPLEMENTARY INFORMATION:

Effect of Dangling Chains on the Structure and Physical Properties of a Tightly Crosslinked Poly(ethylene glycol) Network

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Gel Permeation Chromatography (GPC) Analysis of star polymer DC100. GPC analysis was performed on a Waters Breeze system, model 151, with a refractive index detector Waters model 2414 and three columns, Phenomenex phenogel (5µ - 50 Å, 5µ - 103 Å and 5µ - 104 Å) with THF with 1 ml/min. flow rate as mobile phase. Figure SI 1 shows the chromatograms of the star polymer (DC100) with SSQ core and PEO-2000 arms (formed through a sol-gel reaction) compared to that for the PEO-2000 arms alone. The estimated connectivity is around 4 to 5 based on the relative retention times from an analogous 4- and 6-star polycaprolactone system calibrated using PEG in the same molar mass range.[1] These observations are necessarily qualitative since the accuracy of comparison between linear and star polymer molecular weights through GPC is very low due to differences in hydrodynamic radius between the linear precursor polymer and the star polymer product (which will have a molar mass distribution that has peaks that are simple multiples of the precursor). A correction factor of 1.47 has been used to account for this.[1]

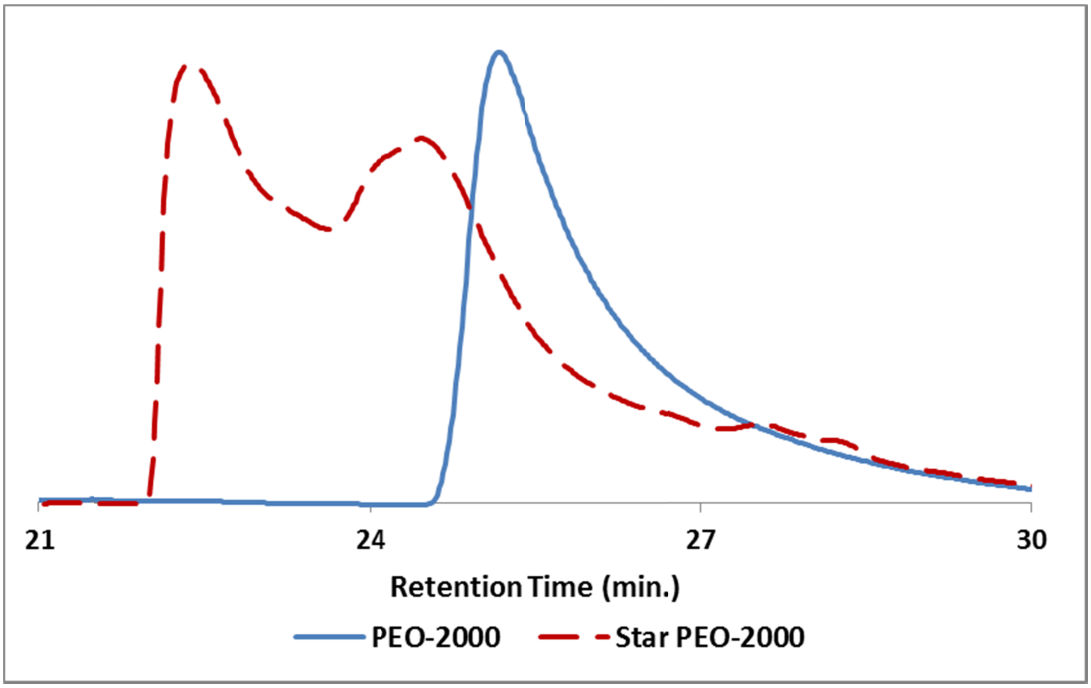

Figure SI 1. GPC chromatograms showing the size difference between PEO-2000 as starting polymer and star PEO-2000 as reacted polymer (sample DC100). The results show the precursor was reacted and the star polymer was formed.

1 M. A. Meier and U. S. Schubert, *e-Polymers*, 2005, no. 085, ISSN 1618-7229