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Thermoporosimetric Measurements of Network Heterogeneity: Melting Point Depression, Gibbs-Thomson and Flory-Huggins JINRONG WU, GREGORY MCKENNA¹, Department of Chemical Engineering, Texas Tech University — To improve understanding the heterogeneity and structure of polymer networks, thermoporosimetry was performed on four model networks of polydimethylsiloxanes (PDMS), which were obtained by tetrakis(dimethylsiloxy)silane crosslinking vinyl terminated PDMS having different molecular weights. The effects of solvent molecular size, solvent quality and PDMS chain length between cross-linkages on the anomalous melting point depression of solvents in these model networks were systematically investigated. The results are analyzed in terms of both the Gibbs-Thompson (GT) equation and the Flory-Huggins (FH) model. Furthermore, we also compared the the pore size distributions obtained from thermoporosimetry for these model networks with the molecular distribution of their oligomers as determined by Matrix Assisted Laser Desorption/Ionization Time of Flight Mass Spectrometry.

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