

Abstract Submitted
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Phase behavior study of polystyrene and deuterated polystyrene in alkyl-cyclohexanes ZACHARIAH NORMAN, Rensselaer Polytechnic Institute, WAYNE POWERS, CHANG RYU, Rensselaer Polytechnic Institute, ZACHARIAH NORMAN, WAYNE POWERS, CHANG RYU TEAM — To advance the controlled chemical modification of polystyrene (PS) and deuterated polystyrene (dPS) in solution, the phase behavior of PS and dPS in alkyl-cyclohexane solvents has been studied. Cloud point measurements have been performed by a house-made turbidity instrument using a picolog thermistor and a laser with a photoelectric cell converted to interface with a picolog TH-03 three channel thermistor converter. Solution phase diagrams for molecular weights of PS varying from 67 thousand to 1.8 million have been presented for methyl cyclohexane, propyl cyclohexane, isopropyl cyclohexane, butyl cyclohexane and isobutyl cyclohexane for the measurements of critical solution temperatures as a function of molecular weight. The theta temperature of polystyrene in each of these solvents has been estimated through extrapolation from the molecular weight dependence of the critical temperatures from the cloud point measurements.

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