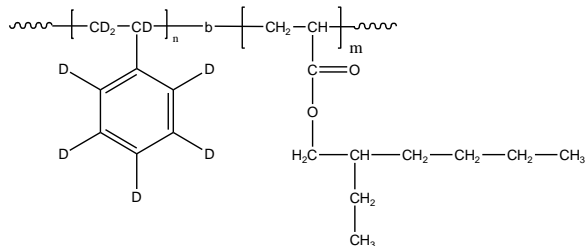


Sample Name:

Deuterated polystyrene (d₈)- poly 2-ethylhexylacrylate(protonated)

Sample #: P9446B-dPSEtHA

Structure:

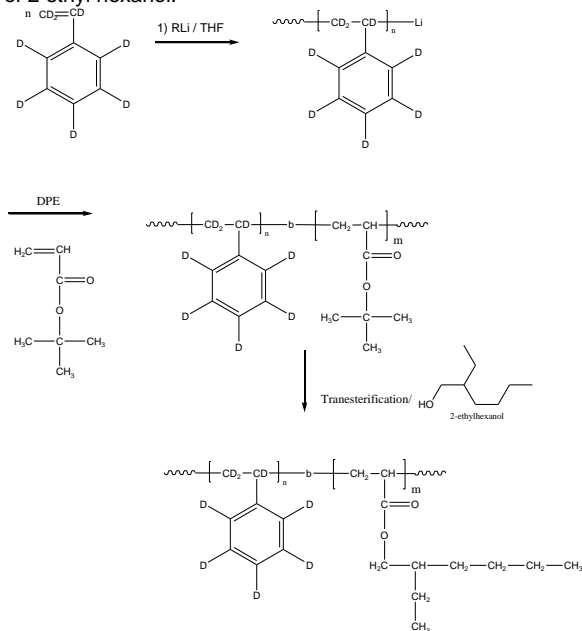


Composition:

Mn x 10 ³	PDI
15.0-b-16.0	1.05

Synthesis Procedure:

Deuterated poly(styrene (D₈)-b-t-butyl acrylate) is prepared by living anionic polymerization in THF at -78 °C using sec.BuLi initiator in the presence of LiCl. Deuterated Polystyrene macroanions were end capped with a unit of diphenyl ethylene (DPE) before adding tert.butylacrylate (tBuA) monomer. For further details please see our published articles.¹⁻⁵ The obtained polymer transesterified in presence of 2 ethyl hexanol.



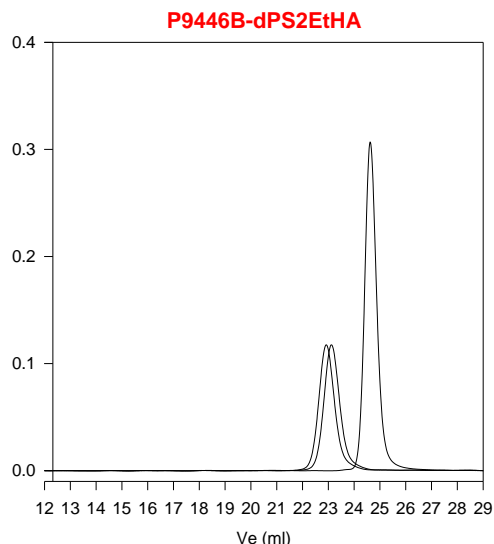
Characterization:

The molecular weight and polydispersity index (PDI) are obtained by size exclusion chromatography (SEC) in THF. SEC analysis was performed on a Varian liquid chromatograph equipped with refractive and UV light scattering detectors from Viscotek Co. Three SEC columns from Supelco (G6000-4000-2000 HXL) were used.

Solubility:

Deuterated polystyrene-b-2-ethyl hexylacrylate is soluble in THF, dioxane, Toluene, benzene, CHCl₃. It precipitates from methanol/water.

SEC of the product:



Size exclusion chromatography of deuterated (d₈) polystyrene-poly(2 EtHA)

- Deuterated Polystyrene, M_n=15000, M_w=15700, PI=1.05
- Block Copolymer dPS(15000)-b-PtBuA(11300), PI=1.04
After transesterification of Tert.butyl ester:
Mn 15000-b-16000 Mw/Mn 1.05

References for further information:

- S. K. Varshney, R. Fayt, Ph. Teyssie, and J.P. Hautekeer US Patent 5,264,527 (1993)
- Ph. Teyssie, Ph. Bayard, R. Jerome, S. K. Varshney, and J. S. Wang, *35th IUPAC International Union of Pure & Applied Chemistry International Symposium on Macromolecules* 1994, 67.
- Ph. Teyssie, R. Fayt, J. P. Hautekeer, C. Jacobs, R. Jerome, L. Leemans and S. K. Varshney *Makromolekulare Chemie, Macromol. Symp.*, 1990, 32,61-73.
- S. K. Varshney, J. P. Hautekeer, R. Fayt, R. Jerome, and Ph.Teyssie *Macromolecules*, 1990, 23, 2618-2622.
- R. Jerome, R. Forte, S. K. Varshney, R. Fayt, and Ph. Teyssie "The Anionic Polymerization of Alkylacrylates: A Challenge" in the Recent Advances in Mechanistic and Synthetic Aspects of Polymerization: M. Fontanille and A. Guyot Ed., NATO ASI Series C 215,101 (1987), CA Vol. 108, 12, 094992.