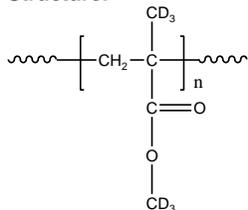


Sample Name: Deuterated Poly(methyl methacrylate)-d6

Sample #: P9713-d6PMMA

Structure:

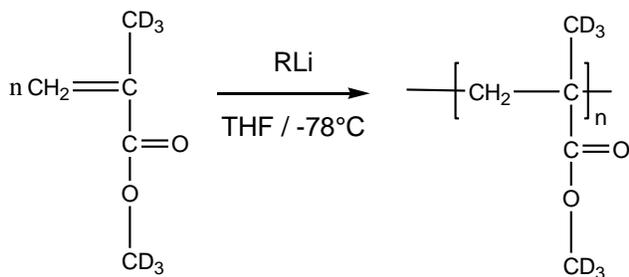


Composition:

Mn x 10 ³	PDI
45.0	1.10

Synthesis Procedure:

Deuterated poly(methyl methacrylate)-d6 is obtained by living anionic polymerization using sec.BuLi as initiator end capped with a unit of diphenyl ethylene or few units of α -methylstyrene. The polymerization of MMA monomer is carried out in THF at -78°C in the presence of LiCl as additive. The polymerization scheme can be illustrated as follows:



Characterization:

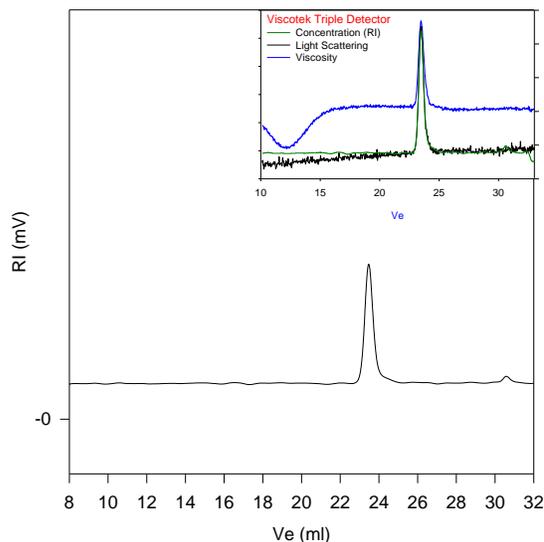
The molecular weight and polydispersity index (PDI) are obtained by size exclusion chromatography (SEC) in THF. SEC analysis was performed on a Varian liquid chromatograph equipped with refractive and UV light scattering detectors. Three SEC columns from Supelco (G6000-4000-2000 HXL) were used with triple detectors from Viscotek Co. ¹H NMR analysis was carried out on Varian instrument at 500MHz.

Solubility:

Deuterated poly(methyl methacrylate)-d₆ is soluble in THF, CHCl₃, toluene and dioxane. The polymer precipitates from hexanes, methanol and ethanol.

SEC of Homopolymer:

P9713- d6PMMA



Size Exclusion Chromatography of poly(methyl methacrylate)-d6:

— $M_n = 45000$, $M_w = 49500$, $M_w/M_n = 1.10$
 $R_g = 6.87\text{nm}$.

(from Viscotek Triple detector)