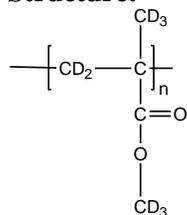


Sample Name: Poly(methyl methacrylate)-d₈

Sample #: P3667-dPMMA

Structure:

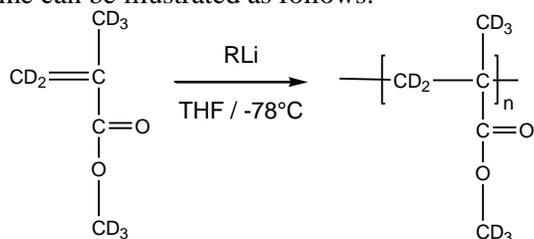


Composition:

Mn x 10 ³	PDI
32.0	1.06

Synthesis:

Deuterated poly(methyl methacrylate)-d₈ 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:

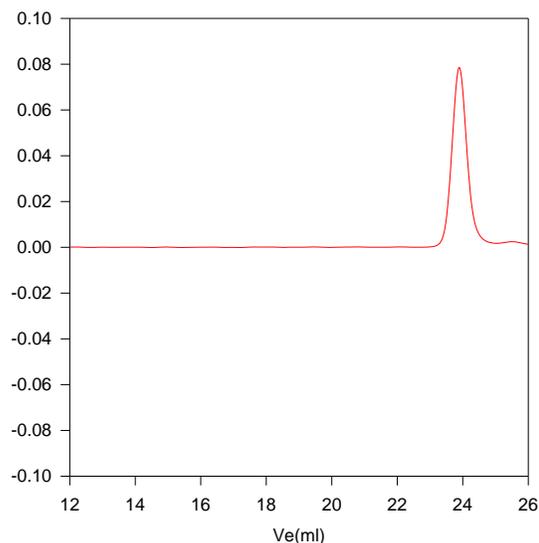
The molecular weight and polydispersity index (PDI) are obtained by size exclusion chromatography (SEC) in THF. SEC analysis was performed on a Varian liquid chromatograph equipped with refractive and UV light scattering detectors. Three SEC columns from Supelco (G6000-4000-2000 HXL) were used with triple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

Solubility:

Deuterated poly(methyl methacrylate)-d₈ is soluble in THF, CHCl₃, toluene and dioxane. The polymer precipitates from hexanes, methanol and ethanol.

SEC of Homopolymer:

P3667-d8PMMA



Size exclusion chromatography of Deuterated poly(methyl methacrylate):

M_n=32000, M_w=34000, M_w/M_n=1.06

Solution viscosity: 0.197 dl/g Radius gyration: 6.35 nm