

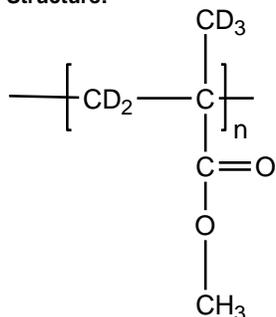
Sample Name: Deuterated Poly(methyl methacrylate)-d₅

SEC of Homopolymer:

Sample #: P1529-d5PMMA

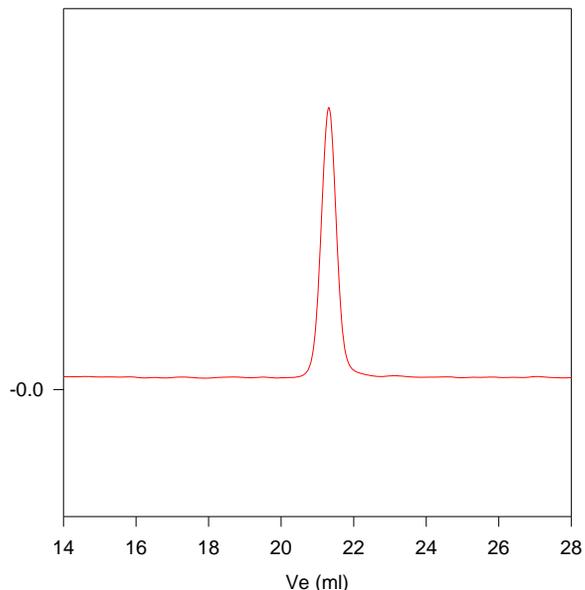
P1529-dMMA (CD3)

Structure:



Composition:

Mn x 10 ³	PDI
56.0	1.03

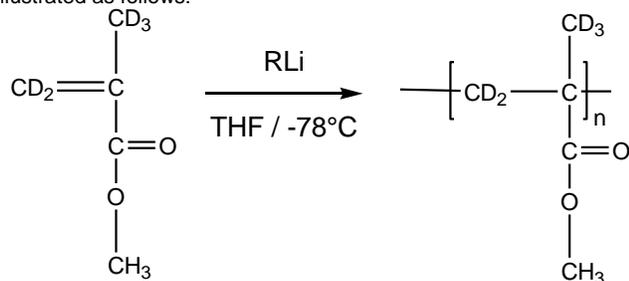


Size exclusion chromatograph of Poly methyl methacrylate(d₅):
α methyl and methylene deuterated:

M_n=56,000, M_w=57,700, PI=1.03

Synthesis Procedure:

Deuterated poly(methyl methacrylate)-d₅ 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)-d₅ is soluble in THF, CHCl₃, toluene and dioxane. The polymer precipitates from hexanes, methanol and ethanol.