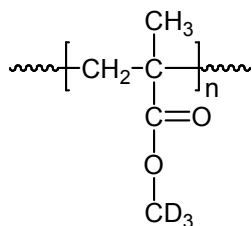


Sample Name: Deuterated Poly (methyl methacrylate)-d₃ ester

Sample #: P40388A-d3PMMA

Structure:

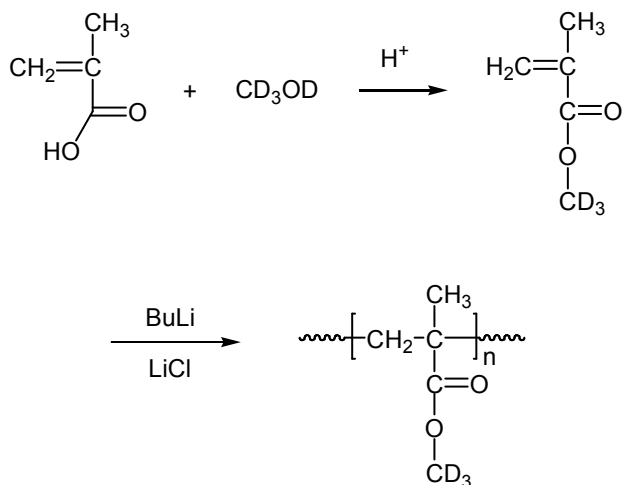


Composition:

Mn x 10 ³	PDI
2.5	1.3

Synthesis Procedure:

Deuterated poly (methyl methacrylate)-d₃ 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:

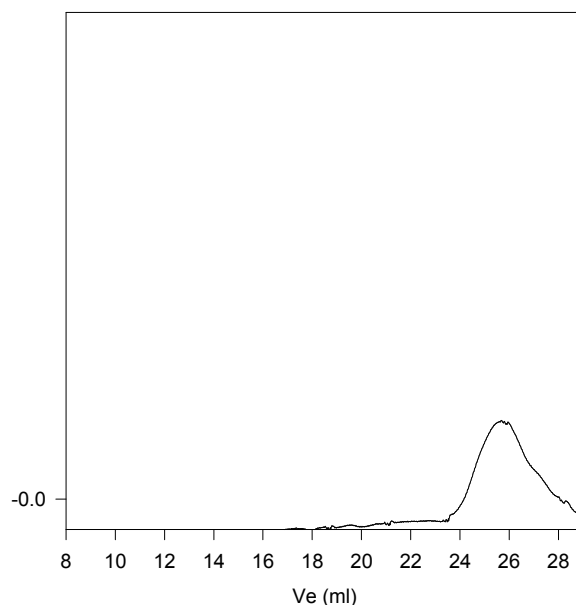
The molecular weight and polydispersity index (PDI) are obtained by size exclusion chromatography (SEC) in THF. SEC analysis was performed on a Varian liquid chromatograph equipped with refractive and UV light scattering detectors. Three SEC columns from Supelco (G6000-4000-2000 HXL) were used with triple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

Solubility:

Deuterated poly (methyl methacrylate)-d₃ is soluble in THF, CHCl₃, toluene and dioxane. The polymer precipitates from hexanes, methanol and ethanol.

SEC of Homopolymer:

P40388A-d3MMA (COOCD₃ ester methyl)



Size exclusion chromatograph of Poly methyl methacrylate(d₃):
M_n=2,500, M_w=3,300, PI=1.3