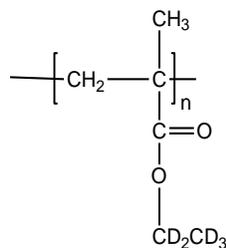


## Sample Name: Poly(ethyl-d5 methacrylate)

Sample #: P6264-d5PEMA

Structure:

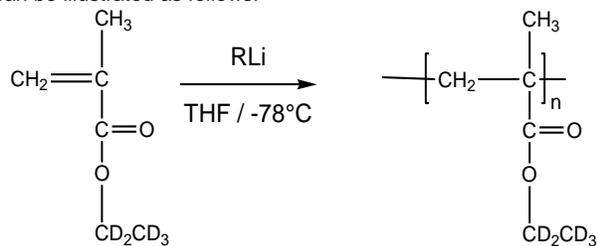


Composition:

Mn x 10 <sup>3</sup>	PDI
11.5	1.05

### Synthesis Procedure:

Deuterated poly(ethyl-d5 methacrylate) is obtained by living anionic polymerization using sec.BuLi as initiator end capped with a unit of diphenyl ethylene or few units of  $\alpha$ -methylstyrene. The polymerization of MMA monomer is carried out in THF at  $-78^\circ\text{C}$  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.  $^1\text{H}$  NMR analysis was carried out on Varian instrument at 500MHz.

### Solubility:

Deuterated poly(ethyl methacrylate)-d<sub>5</sub> is soluble in THF,  $\text{CHCl}_3$ , toluene and dioxane. The polymer precipitates from hexanes, methanol and ethanol.

### SEC of Homopolymer:

P6264-d5PEMA

