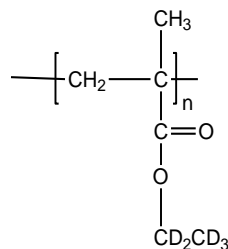


**Sample Name:** Poly(ethyl-d<sub>5</sub> methacrylate)

**Sample #:** P6263-d5PEMA

**Structure:**

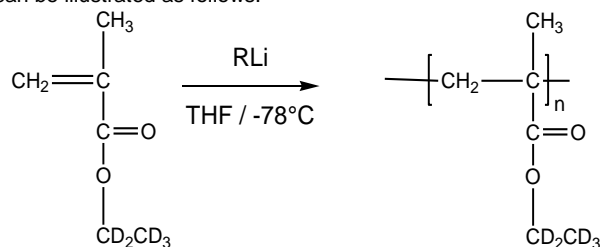


**Composition:**

Mn x 10 <sup>3</sup>	PDI
8.2	1.06

**Synthesis Procedure:**

Deuterated poly(ethyl-d<sub>5</sub> 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 °C in the presence of LiCl as additive. The polymerization scheme can be illustrated as follows:



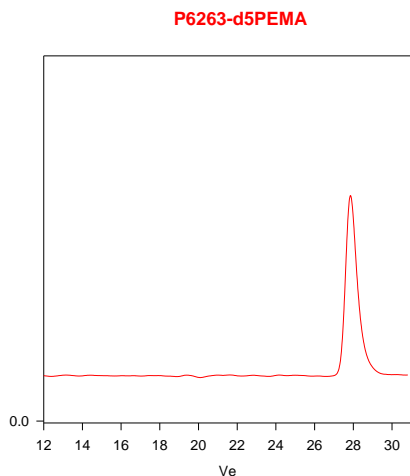
**Characterization:**

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. <sup>1</sup>H NMR analysis was carried out on Varian instrument at 500MHz.

**Solubility:**

Deuterated poly(ethyl methacrylate)-d<sub>5</sub> is soluble in THF, CHCl<sub>3</sub>, toluene and dioxane. The polymer precipitates from hexanes, methanol and ethanol.

**SEC of Homopolymer:**



Size Exclusion Chromatography of Deuterated Poly(ethyl methacrylate)-d<sub>5</sub>:  
M<sub>n</sub>= 8,200, M<sub>w</sub>= 8,700, M<sub>w</sub>/M<sub>n</sub>=1.06

