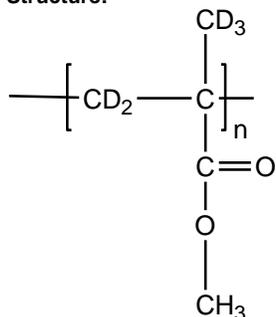


**Sample Name: Deuterated Poly(methyl methacrylate)-d<sub>5</sub>**

**Sample #: P18890-d5PMMA**

**Structure:**

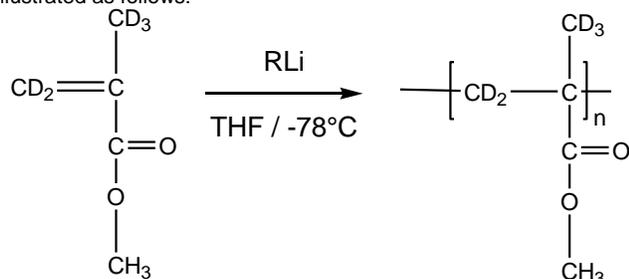


**Composition:**

Mn x 10 <sup>3</sup>	PDI
3.5	1.03

**Synthesis Procedure:**

Deuterated poly(methyl methacrylate)-d<sub>5</sub> 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:**

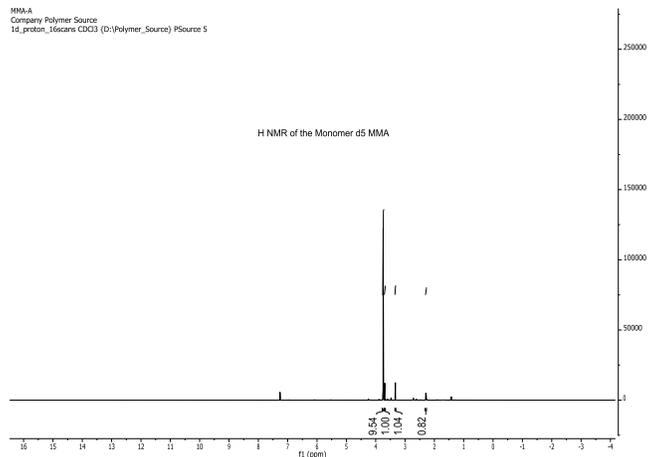
The molecular weight and polydispersity index (PDI) are obtained by size exclusion chromatography (SEC) in THF. SEC analysis was performed on a Varian liquid chromatograph equipped with refractive and UV light scattering detectors. Three SEC columns from Supelco (G6000-4000-2000 HXL) were used with triple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

**Solubility:**

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

**H NMR:**

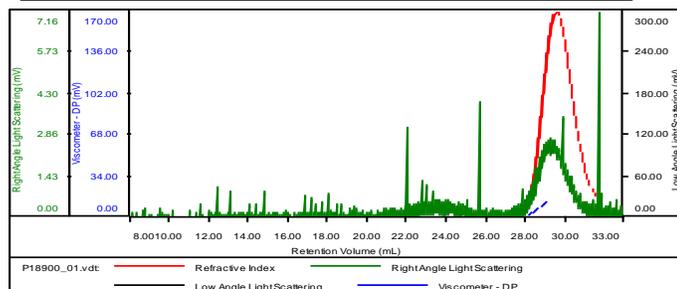
MMA-A  
Company Polymer Source  
14\_proton\_160000 C003 (D:\Polymer\_Source) PSource 5



**SEC of Homopolymer:**

**Sample ID: P18890-d5MMA**

Concentration (mg/mL)	13.5512
Sample dn/dc (mL/g)	0.0840
Method File	PS80K-0923-2014-0000.vcm
Column Set	3x PL 1113-6300
Solvent	THF



Sample	MW Number Average (Da)	MW Weight Average (Da)	MW at Peak (Da)	Polydispersity	Intrinsic Viscosity (dL/g)
P18900_01.vdt	3,466	3,560	3,779	1.027	0.0385