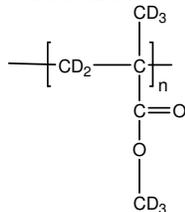


**Sample Name: Poly(methyl methacrylate)-d<sub>8</sub>**  
Atactic rich microstructure

**Sample #: P18742B-dPMMA**

**Structure:**

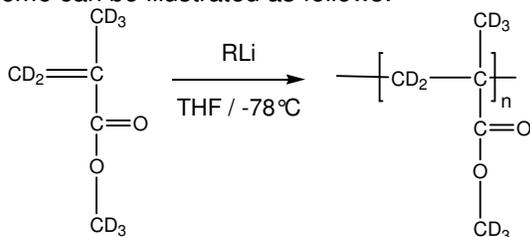


**Composition:**

Mn x 10 <sup>3</sup>	PDI
106.5	1.13

**Synthesis Procedure:**

Deuterated poly(methyl methacrylate)-d<sub>8</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.

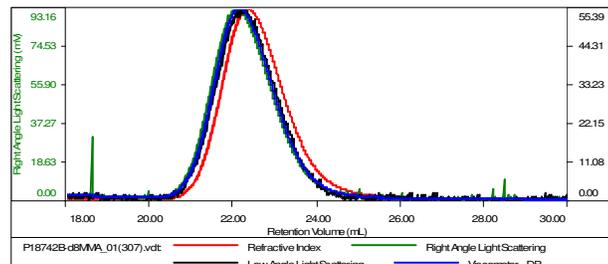
**Solubility:**

Deuterated poly(methyl methacrylate)-d<sub>8</sub> is soluble in THF, CHCl<sub>3</sub>, toluene and dioxane. The polymer precipitates from hexanes, methanol and ethanol.

**SEC of Homopolymer:**

**Sample ID: P18742B-d8MMA**

Concentration (mg/mL)	39.9739
Sample dn/dc (mL/g)	0.0840
Method File	PS80K-June14-2014-0001.vcm
Column Set	3x PL 1113-6300
Solvent	THF



Sample	Mn	Mw	Mp	Mw/Mn	IV
P18742B-d8MMA_01(307).vdt	106,681	120,169	124,698	1.126	0.1182

