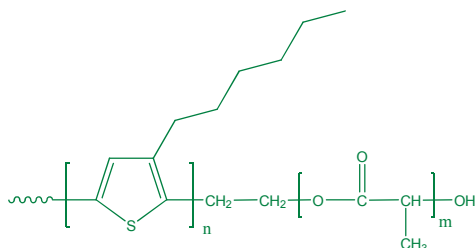


**Sample Name:** Poly(3-hexyl thiophene-b-lactide( L))

**Sample #:** P13183A-3HTLA (L-form)

**Structure:**



**Composition:**

Mn x 10 <sup>3</sup> (3HT-b-LA)	PDI	Regioregularity of P3HT
18.0-b-86.0	2.4	~90% (H-T)

**Synthesis Procedure:**

Purification of polymer:

The crude polymer was recovered from reprecipitation into methanol. The inorganic salts and also to large extent homopolyhexylthiophene fractions from the block copolymer were removed by solvent-non solvent extraction using different solvents system. Finally the polymer was dissolved in chloroform and precipitated in ethanol.

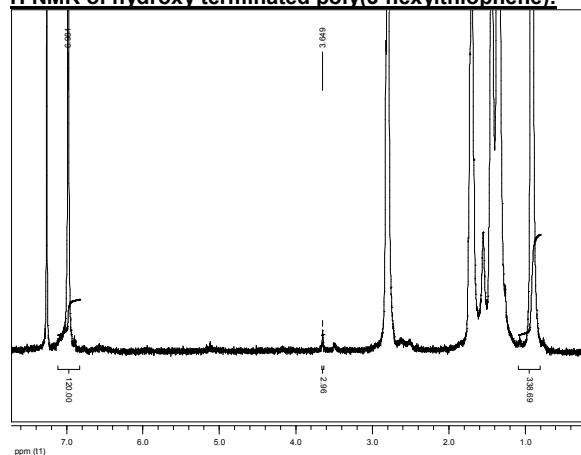
**Characterization:**

The molecular weight and polydispersity index (PDI) are obtained by size exclusion chromatography (SEC) in THF or Chloroform. 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. The molecular weight is calculated based on polystyrene standards. The NMR spectrum was recorded in deuterated chloroform to determine the functionality and the composition of copolymer.

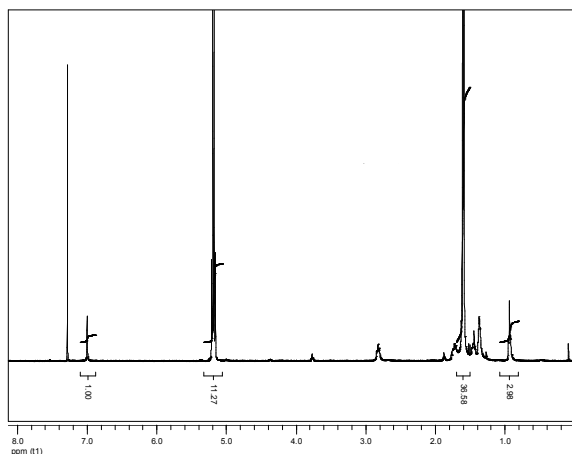
**Solubility:**

Poly(3-hexyl thiophene-b-lactide) is soluble in THF, Toluene and CHCl<sub>3</sub>. It precipitates from methanol and hexane.

**H NMR of hydroxy terminated poly(3-hexylthiophene):**

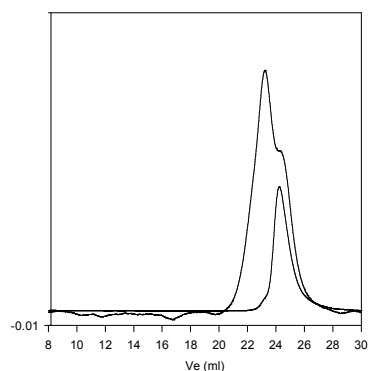


**H NMR of Block copolymer:**



**SEC profile of polymers:**

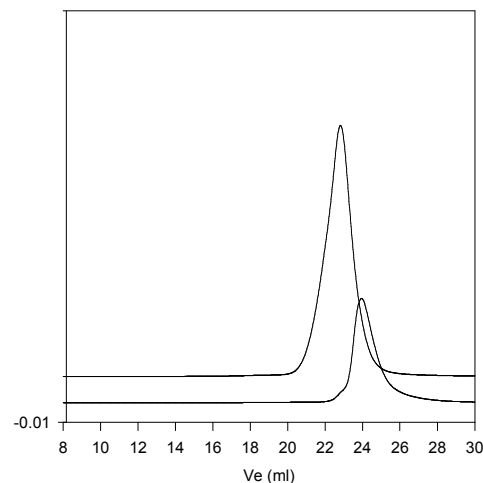
**P13183A-3HTLA (Lform)**



Size exclusion chromatography of poly(3-hexylthiophene-b-Lactide):

— OH terminated poly(3-hexylthiophene),  $M_n=18,000$ ,  $M_w=23000$ ,  $M_w/M_n=1.28$   
 — Block Copolymer  $M_n=P3HT(18000)$ -b-PLA(86,000),  $M_w/M_n=2.4$

**P13183A-3HTLA (Lform) UV detector at 380nm**



Size exclusion chromatography of poly(3-hexylthiophene-b-Lactide):

— OH terminated poly(3-hexylthiophene),  $M_n=18,000$ ,  $M_w=23000$ ,  $M_w/M_n=1.28$   
 — Block Copolymer  $M_n=P3HT(18000)$ -b-PLA(86,000),  $M_w/M_n=2.4$