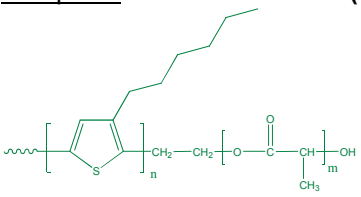
Sample Name:

Poly(3-hexyl thiophene-b-lactide[D/L])

Sample #: **P13190A-3HTLA (D/L-form)**



Composition:

Mn x 10^3 (3HT-b-LA)	PDI	Regioregularity of P3HT
4.0-b-9.5	1.7	~90% (H-T)

Synthesis Procedure:

1. Purification of polymer:

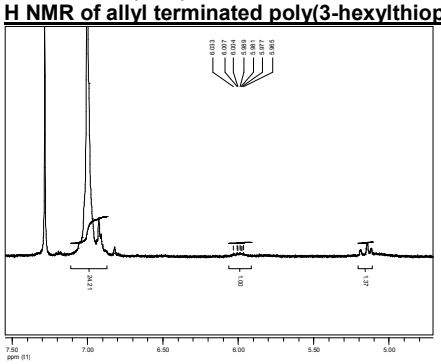
The crude polymer was recovered from reprecipitation into methanol. The inorganic salts were removed by using a Soxhlet extractor with Methanol. Polymer was extracted with solvent-nonsolvent system to remove unreacted Poly hexy thiophene fraction and than polymer recovered and dried under vacuum at 40 oC.

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.

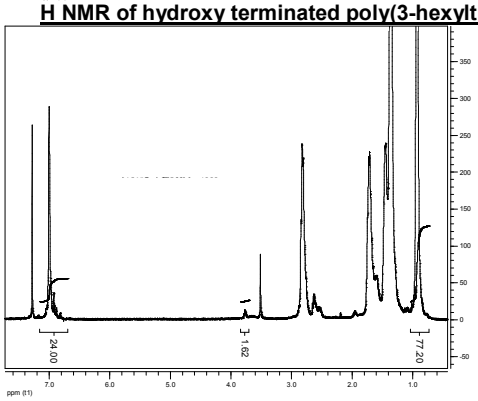
Solubility:

Poly(3-hexyl thiophene-b-lactide) is soluble in THF, Toluene and $CHCl_3$. It precipitates from methanol and hexane.

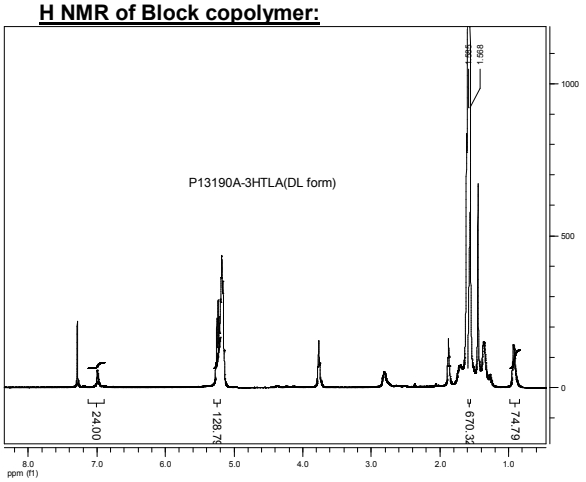
H NMR of allyl terminated poly(3-hexylthiophene):



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

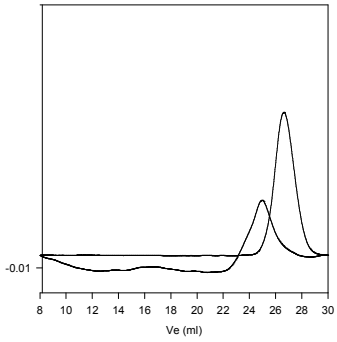


H NMR of Block copolymer:



SEC profile of polymers:

P13190A-3HTLA (DLform)

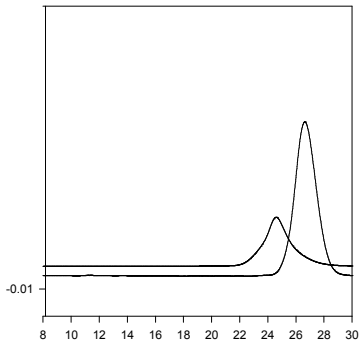


Size exclusion chromatography of poly(3-hexylthiophene-b-lactide):

—— OH terminted poly(3-hexylthiophene), M_n=4,000, M_w=4700, M_w/M_n=1.18

—— Block Copolymer M_n=P3HT(4000)-b-PLA(9500), M_w/M_n=1.7

P13190A-3HTLA (DLform) under UV at 380 nm



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