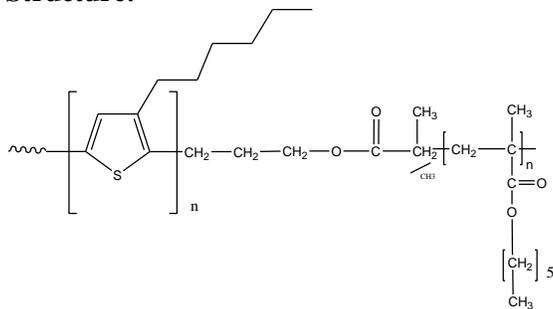


Sample Name:
Poly(3-hexyl thiophene-b-n-Hexyl methacrylate)

Sample #: **P13177-3HTnHexMA**

Structure:



Composition:

Mn x 10 ³ (3HT-b-nHEXMA)	PDI	Regioregularity of P3HT
12.0-b-123.0	2.8	~90% (HT)
The final block copolymer contains about 20% of homopolyhexyl thiophene based on RI detection integration		

Synthesis Procedure:

Purification of polymer:

The crude polymer was recovered from reprecipitation into methanol. The inorganic salts were removed by using a Soxhlet extraction with Methanol and homopoly hexyl thiophene was removed by extraction with hot cyclohexane. The pure polymer was dissolved in chloroform and precipitated in cold acetone

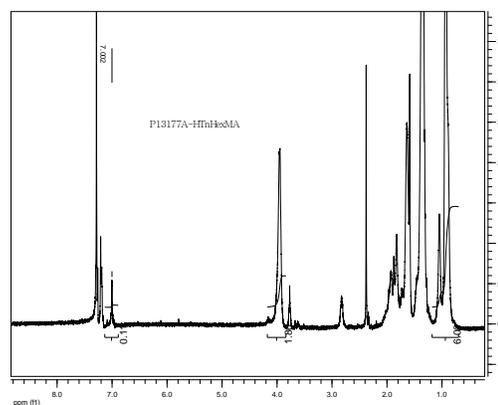
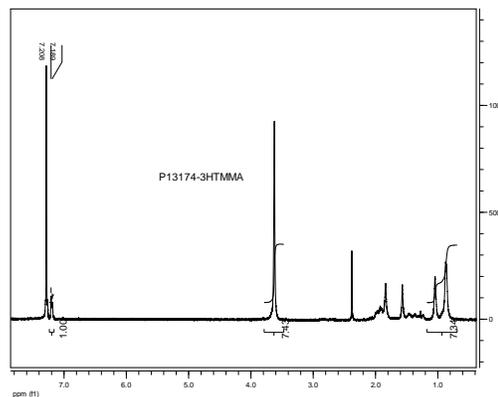
Characterization:

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:

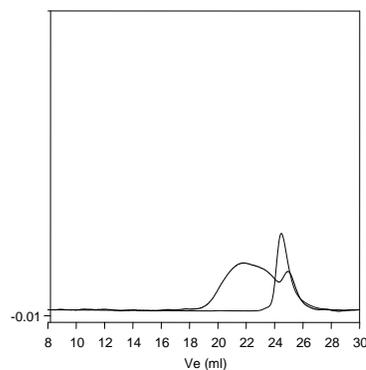
Poly(3-hexyl thiophene-b-nhexylmethacrylate) is soluble in THF, Toluene and CHCl₃. It precipitates from methanol and hexane.

¹H NMR of hydroxy terminated poly (3-hexylthiophene):



SEC profile of polymers:

P13177-3HTMMA



Size exclusion chromatography of poly(3-hexylthiophene-b-styrene):
 — Allyl terminated poly(3-hexylthiophene) $M_n=12,000$, $M_w=13800$, $M_w/M_n=1.15$
 — Block Copolymer [P3HT(12000)-b-PS(123,000)] $M_n=2.8$