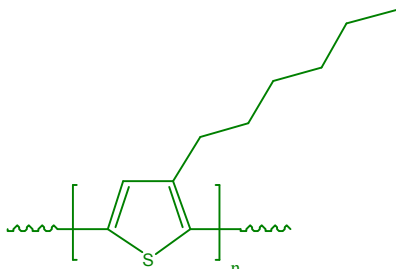


Sample Name: Poly(3-hexyl thiophene)

Sample #: P13182-3HT

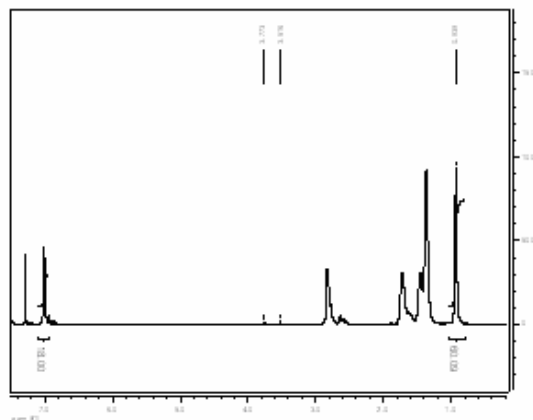
Structure:



Composition:

Mn x 10 ³	PDI	Regioregularity
8.0	1.18	~90% (H-T)

H NMR of polymer:

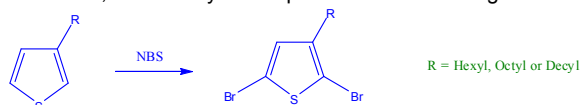


SEC of Homopolymer:

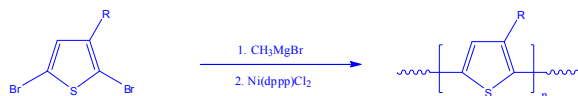
P13182-3HT

Synthesis Procedure:

1. Monomer synthesis:
2,5-Dibromo-3-hexyl thiophene was prepared according to literature, the brief synthetic procedure as following:



2. Polymerization:
The obtained monomer was polymerized by the means of Grignard metathesis (GRIM).



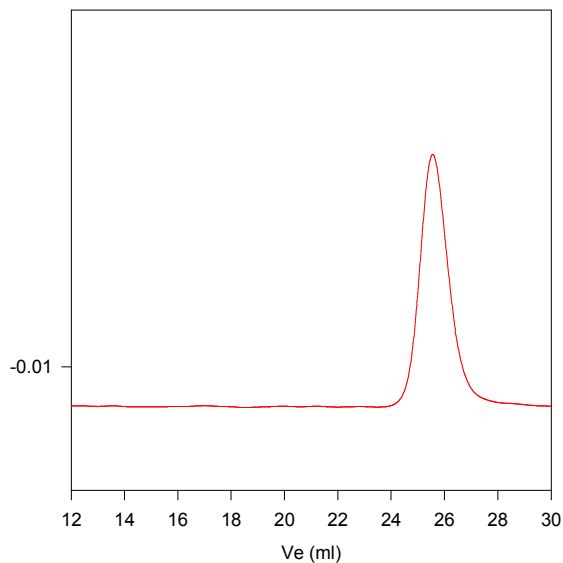
3. Purification of polymer:
The crude polymer was recovered from reprecipitation into methanol. The inorganic salts were removed by using a Soxhlet extractor with Methanol. The pure polymer was dissolved in chloroform by the same extractor.

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.

Solubility:

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



Size exclusion chromatography of poly(3-hexyl thiophene):

— M_n=8000, M_w=9400, M_w/M_n=1.18,