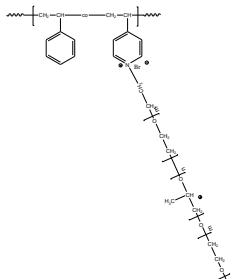


Sample Name:

**Poly(styrene-co-[4-vinyl pyridine, quaternized with PEO-PPO-PEO triblock copolymer]), random**

Sample #: P10483C-S4VPQEOPPOEOBr

## Structure:



## **Composition:**

Mn ×10 <sup>3</sup> PS-co-P4VP	PDI
125.0	-

% Quaternization with PEOPPOEOBr block  
Mn: 0.310-b-1.3-b-0.670  
Dp: 7-b-23-b-15  
 $\approx$ 22%  
S:4VP ratio: 20:80

### Characterization:

The composition was calculated from  $^1\text{H-NMR}$  spectroscopy by comparing the peak area of the styrene protons at 6.3-7.2 ppm with the peak area of the 4-vinyl pyridine protons at about 8.5 ppm.

**Quaternization.** Polymer was dissolved in distilled DME

S4VP copolymer: 12.5g

EOPONH-Epoxy Block copolymer: 3.6 g

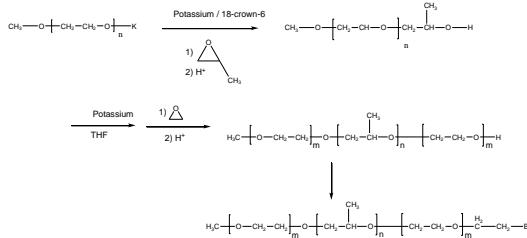
ESI-ONR Epoxy Block copolymer  
DMF Stirrer at 60 °C over night

Precipitated in Hot hexane to remove any unreacted EOPO block copolymer:

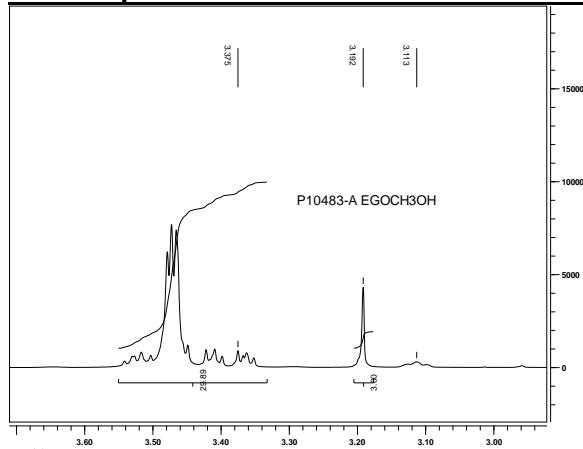
LOTO block  
Yield: 15.6g

### Solubility•

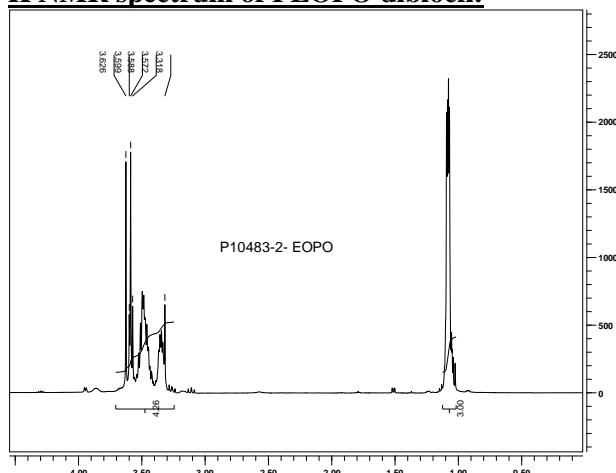
**Solubility:** Polymer is soluble in DMF, NMP and DMSO and also in methanol



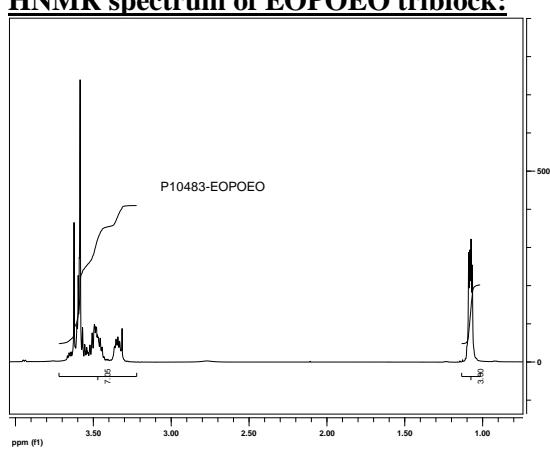
## HNMR spectrum of PEOOCH<sub>3</sub>OH First block:



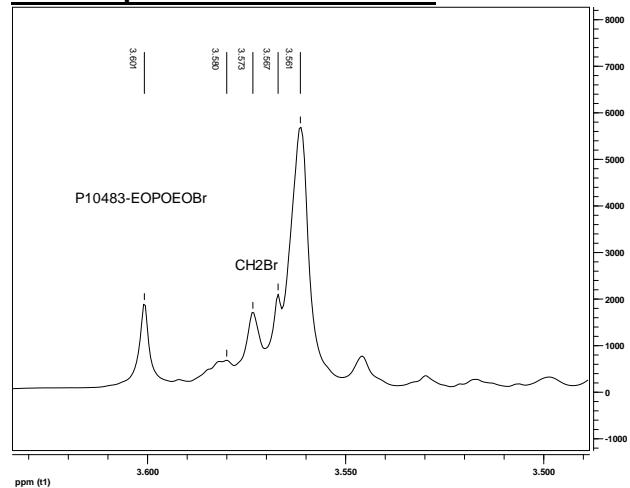
### <sup>1</sup>H NMR spectrum of PEOPO diblock:



The figure shows the  $^1\text{H}$  NMR spectrum of the EOPOEO triblock copolymer. The x-axis represents the chemical shift ( $\delta$ ) in ppm, ranging from 1.00 to 4.00. The spectrum displays several distinct signals: a sharp peak at approximately 1.35 ppm (olefinic region), a broad multiplet between 2.00 and 2.50 ppm (aliphatic region), and a very strong, sharp peak at 3.65 ppm (olefinic region). The integration values for the peaks are: 1.35 ppm (~0.05), 2.00-2.50 ppm (~0.15), and 3.65 ppm (~0.80).

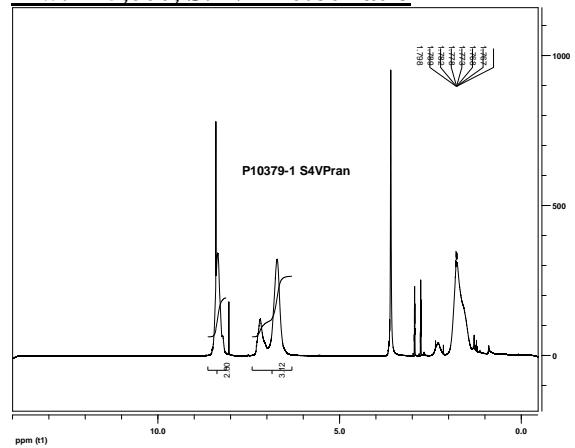


### **HNMR spectrum of EOPOEOBr:**



### **HNMR of S4VP random copolymers used:**

**Mw: 125,000, S:4VP 20:80 ratio**



### **HNMR spectrum of the S4VPQEOPPOEOBr:**

