

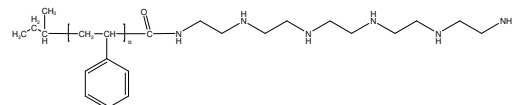
Sample Name: **Pentaethyl Hexamine Terminated**

**Polystyrene**

Sample #: **P18887B-SPEHA-Dialysed polymer**

Against water

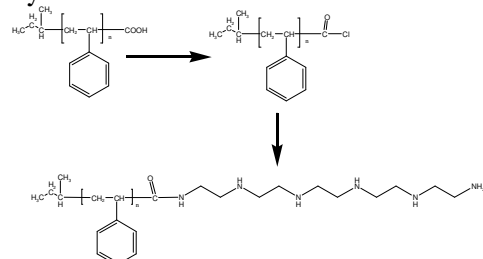
**Structure:**



**Composition:**

Mn x 10 <sup>3</sup>	PDI
2.2	1.08 (COOH) (1.3)
(NH <sub>2</sub> ) Functionality %	>86%

**Synthesis Procedure:**



**Characterization:**

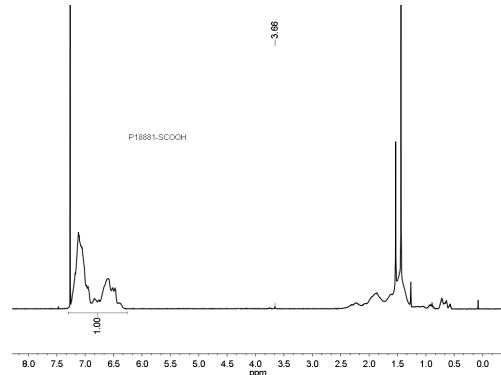
The molecular weight and polydispersity index of this polymer were determined before and after addition of the CO<sub>2</sub>H function, by size exclusion chromatography (SEC) using a Varian liquid chromatograph equipped with a UV and refractive index detector. Polymer COOH functionality was determined by titration with NaOH using phenolphthalein as the indicator.

After end capping of Pentaethylene hexamine, polymer SEC chromatogram shows some broadening, it may be due to adsorption of polymer with column packing material.

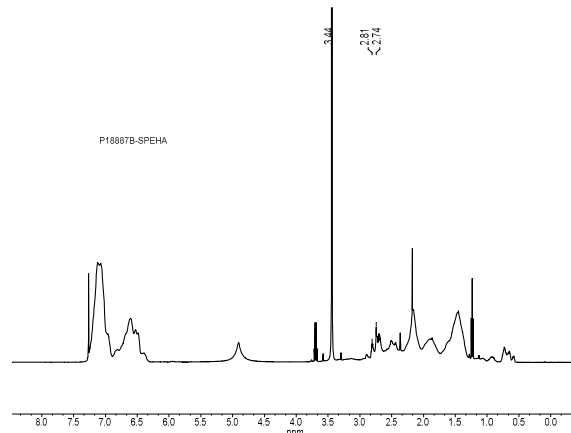
**Solubility:**

Polymer is soluble in toluene, THF, CHCl<sub>3</sub> and can be precipitated in water and cold methanol.

**H NMR:**



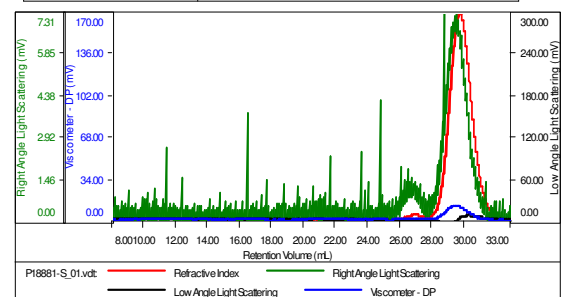
**NMR of SPEHA:**



**SEC:**

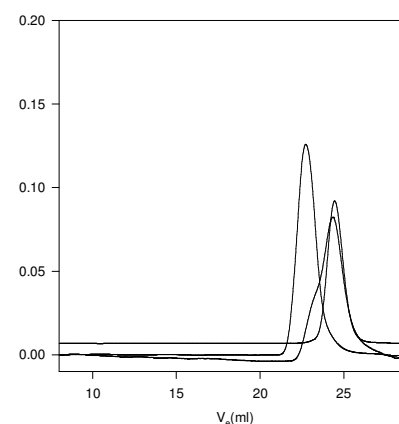
**Sample ID: P18881-S Before termination with CO<sub>2</sub>**

Concentration (mg/mL)	5.5172
Sample dn/dc (mL/g)	0.1850
Method File	PS80K-0803-2014-0000.vcm
Column Set	3x PL 1113-6300
Solvent	THF



Sample	MW Number Average (Da)	MW Weight Average (Da)	MW at Peak (Da)	Polydispersity	Intrinsic Viscosity (dL/g)
P18881-S_01.vdt	2,185	2,353	2,277	1.077	0.0657

**P18887-SPEHA**



Size exclusion chromatography of polymer in THF at 30 °C

1. PS-COOH Mn =2,300 Mw: 2,400 Mw/Mn:1.04
2. PS-PEHA (terminated with pentaethylene hexamine) Mn 2300 Contain about 16% dimer
3. PS-PEHA-PS: unit of pentaethylene hexamine in the middle of polymer chain