

## Product Profile

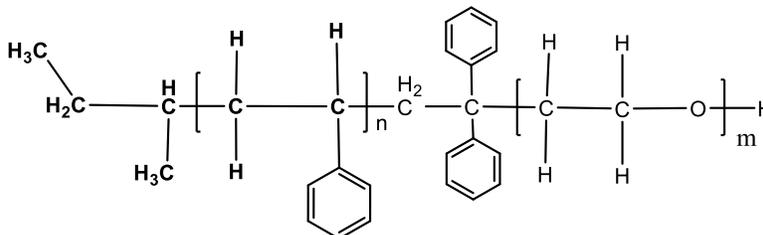
### Identification

**Product Name:** Poly(styrene-b-ethylene oxide)

**Product Lot Number:** P44784-SEO

**CAS #:** Not Available

**Product Chemical Architecture:**



**Composition:**

Composition (S-b-EO)	7,500-b-41,000
EO mole%	84.5%
Mn (g/mole)	48,500
Mw (g/mole)	50,000
Mw/Mn	1.00
dn/dc (mL/g) in THF at 30 °C	0.086

### Method of Synthesis

The polymer is synthesized by anionic polymerization process.

**Solubility in different solvents:**

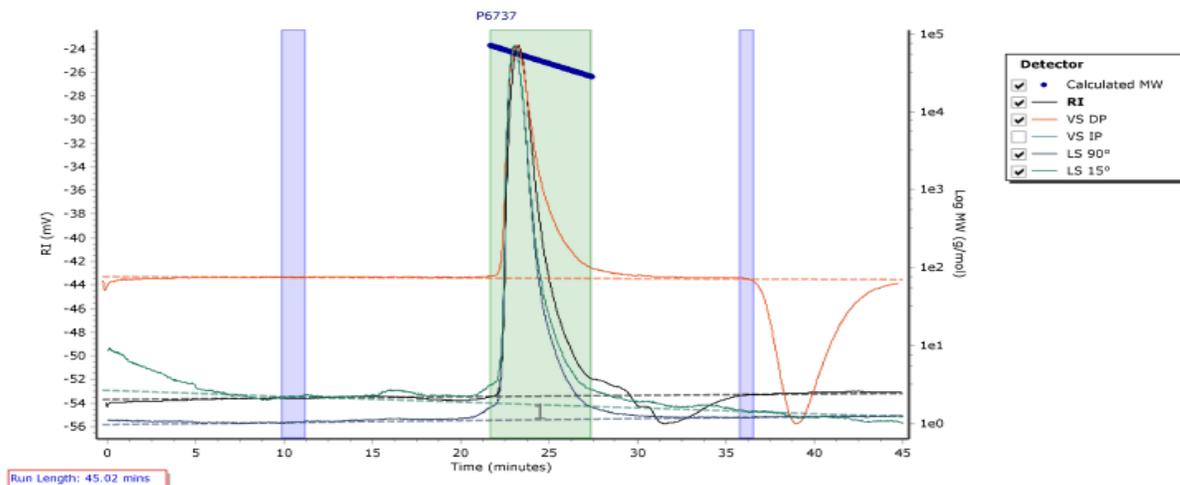
THF	√	DMF	√
Alcohol	X	CHCl <sub>3</sub>	√
Toluene	√	Water	X

### Validation of Architecture

#### A. Gel Permeation Chromatography (GPC), SEC Profile:

Molecular weights were determined by Agilent Technologie 1260 Infinity II GPC/SEC System equipped with Triple detector (RI, Viscometer, RALS 90° and LS 15°) and three columns (PLgel, 7.5x300 mm, 5µm-10µm, 10<sup>5</sup>-10<sup>6</sup>Å). THF (stabilized BHT) with 1%(v/v%) TEA was the eluent. The flow rate was 1.0 ml/min.

Chromatogram Plot

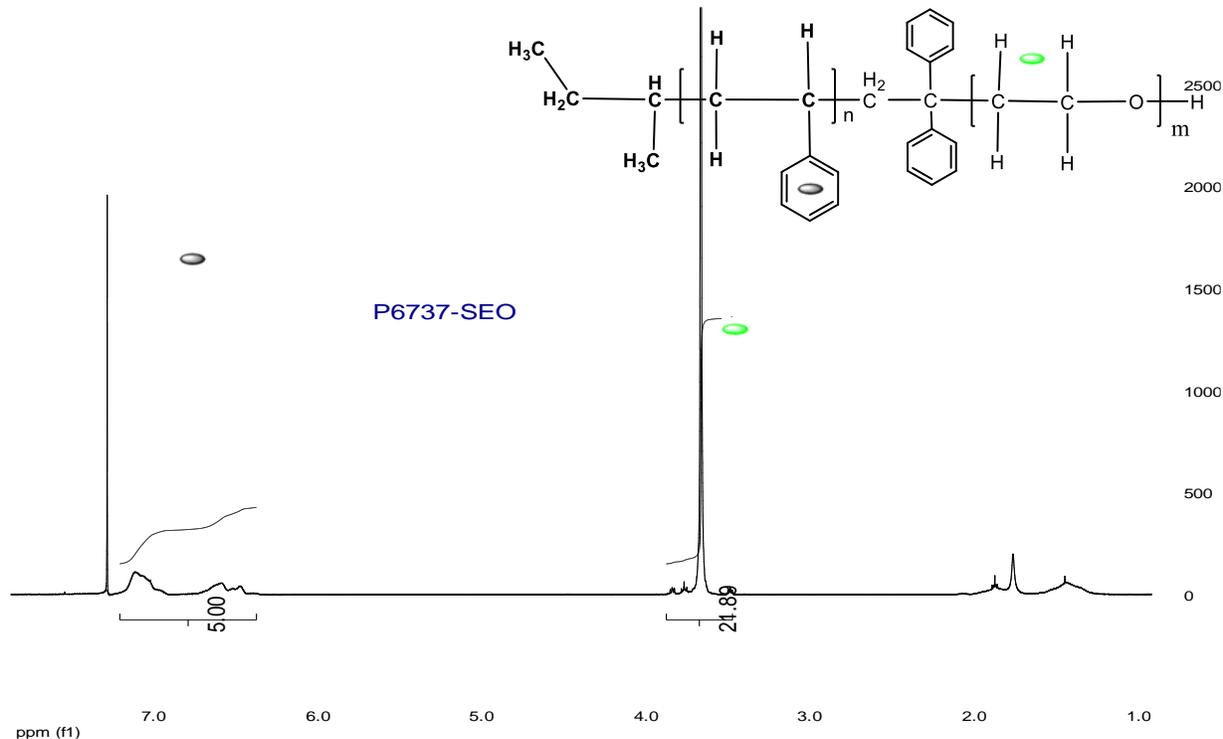


Molecular Weight Averages

Peak	Mp (g/mol)	Mn (g/mol)	Mw (g/mol)	Mz (g/mol)	Mz+1 (g/mol)	Mv (g/mol)	PD
Peak 1	55120	48740	50210	51494	52603	51084	1.03

B. NMR (<sup>1</sup>H NMR) of SEO

SMMA sample was dissolved in CDCl<sub>3</sub>. <sup>1</sup>H NMR spectra was determined using a 500 MHz. Bruker Avance III spectrometer.



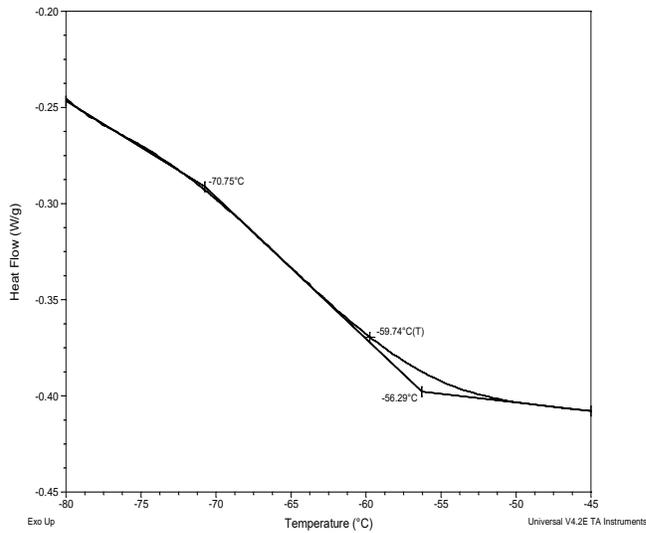


**Thermal analysis of the sample# P44784-SEO**

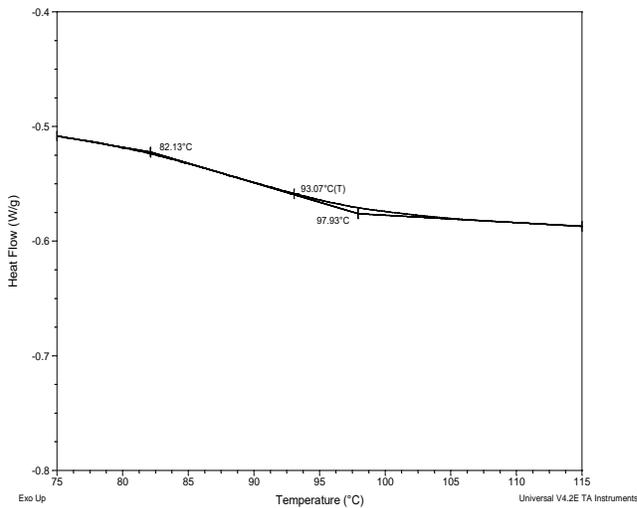
Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 20°C/min. The midpoint of the slope change of the heat flow plot of the second heating scan was considered as the glass transition temperature ( $T_g$ ).

**Thermogram for the sample**

**For PEO block:**



**For PS block**





**Thermal analysis results at a glance:**

<b>For PS block <math>T_g</math>: 93°C</b>		
<b>For PEO block</b>		
$T_g$ : -60°C	$T_m$ : 54°C	$T_c$ : -34°C

**Melting and crystallization curve for the PEO block**

The melting temperature ( $T_m$ ) was taken as the maximum of the endothermic peak whereas the crystallization temperature ( $T_c$ ) was considered as the minimum of the exothermic peak.

