

Product Profile

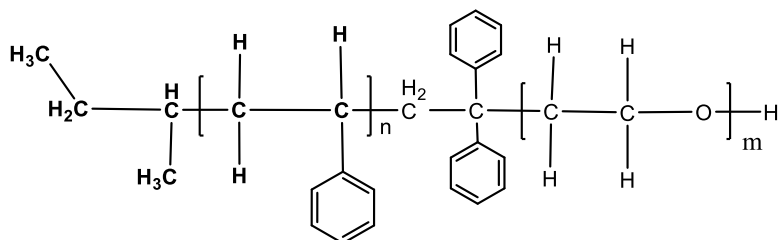
Identification

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 ₃	√
Toluene	√	Water	X

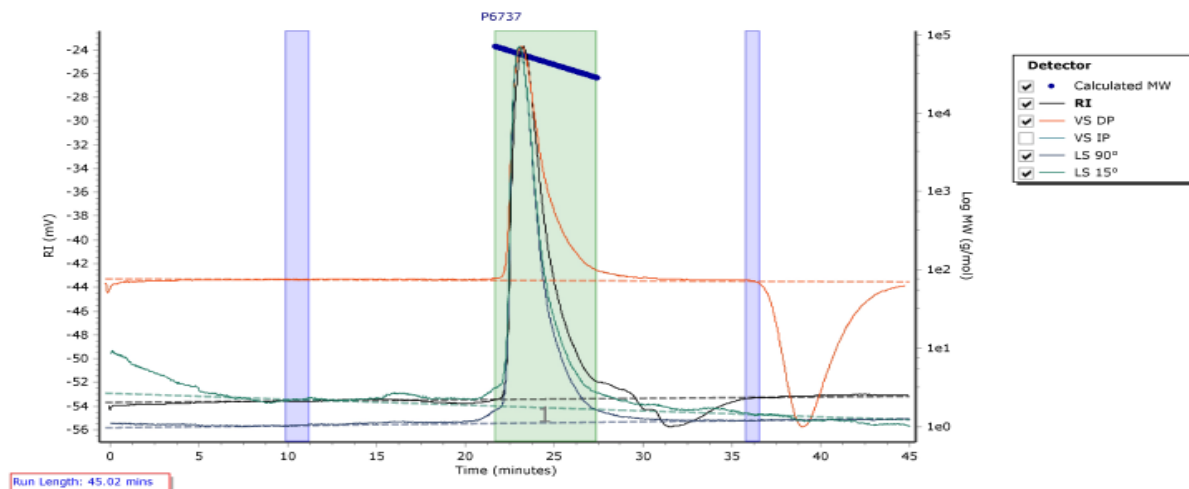
Validation of Architecture

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, 10⁵-10⁶Å). THF (stabilized BHT) with 1%(v/v%) TEA was the eluent. The flow rate was 1.0 ml/min.



Chromatogram Plot

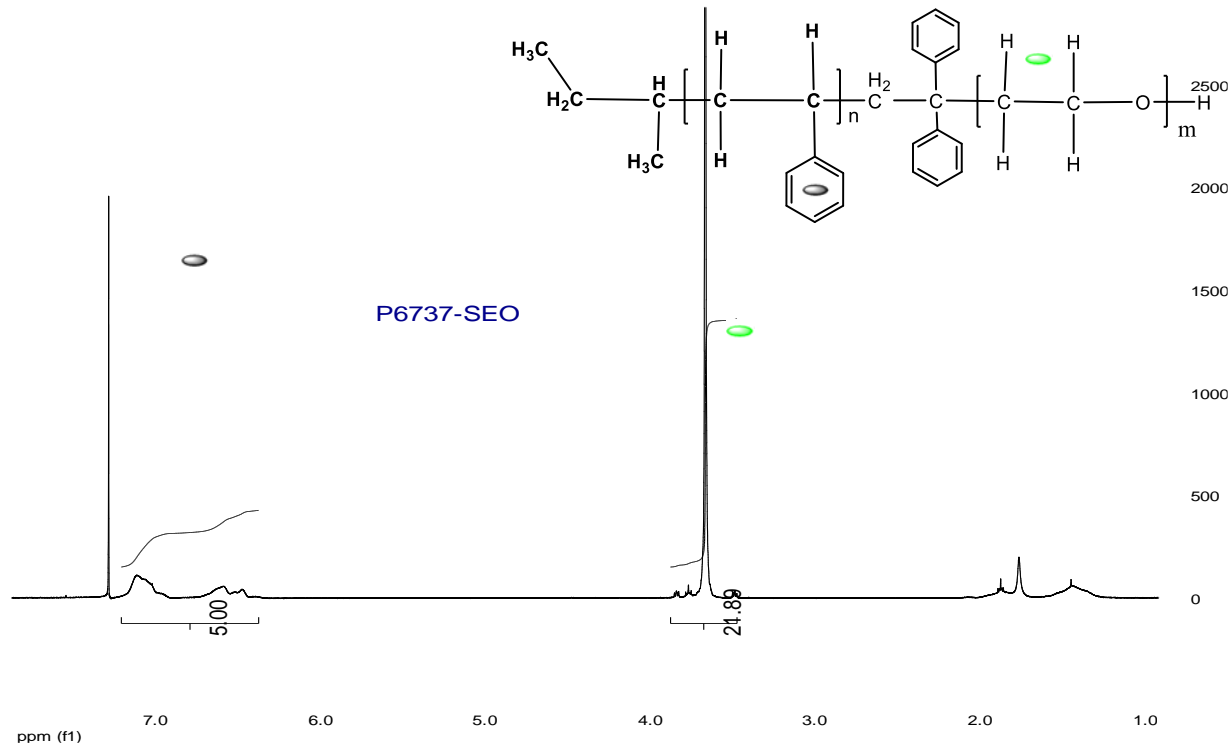


Molecular Weight Averages

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 (H¹NMR) of SEO

SMMA sample was dissolved in CDCl₃. ¹H NMR spectra was determined using a 500 MHz. Bruker Avance III spectrometer.

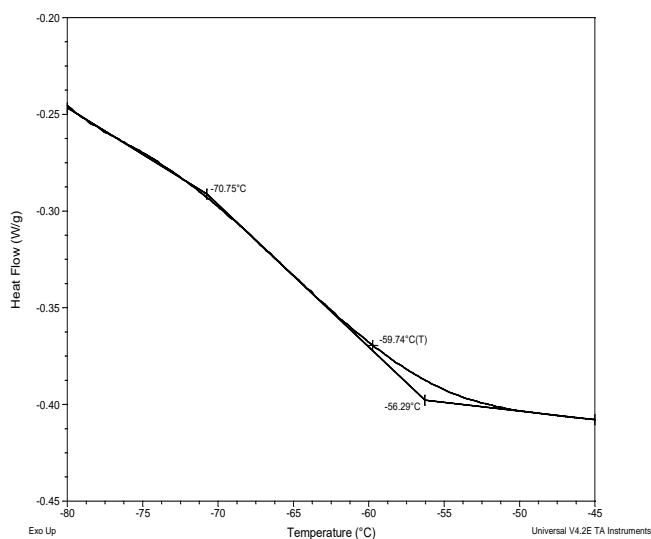


Thermal analysis of the sample# P44784-SEO

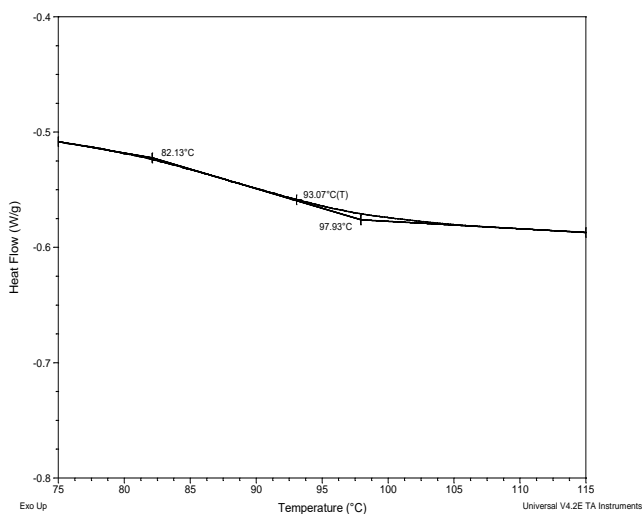
Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 20°C/min. The midpoint of the slope change of the heat flow plot of the second heating scan was considered as the glass transition temperature (T_g).

Thermogram for the sample

For PEO block:



For PS block



Thermal analysis results at a glance:

For PS block T_g: 93°C		
For PEO block		
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.

