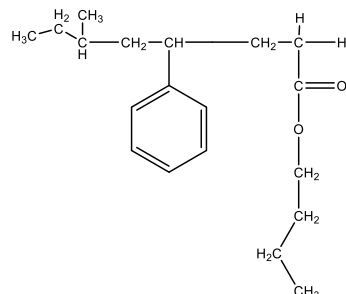Sample Name:
Poly(styrene), ω-n-Butyl acrylate -terminated

Sample #: **P45153A-S-nBuA**

Structure:

Composition:

Mn x 10^3	PDI
570.0	1.05

Synthesis Procedure:
ω, nBuA terminated Polystyrene was prepared by living anionic polymerization of styrene using a monofunctional initiator in THF followed by termination with tert butyl acrylate followed by esterification.

Characterization:
The molecular weight and polydispersity index of this polymer were determined by size exclusion chromatography (SEC) using a Varian liquid chromatograph equipped with a UV and refractive index detector. Polymer functionality was determined by HNMR.
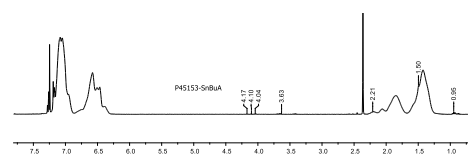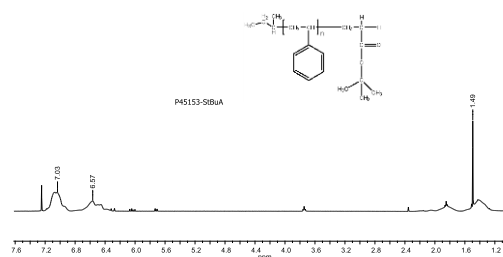
Thermal analysis:
Thermal analysis of the samples was carried out using a differential scanning calorimeter (TA Q100) at a heating rate of 10°C/min.
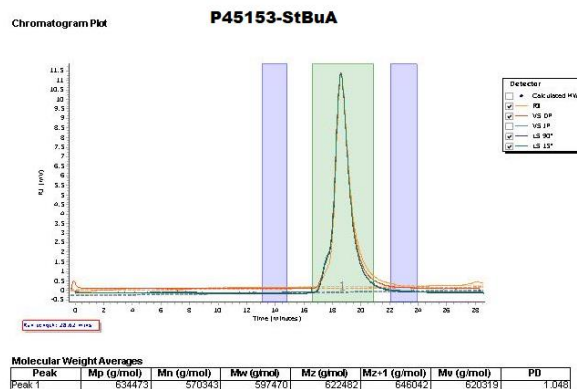The inflection glass transition temperature (T_g) has been considered.

Solubility:
Polymer is soluble in toluene, THF, CHCl$_3$ and can be precipitated in water and cold methanol.

HNMR of tBuA terminated Polystyrene

SEC of Sample:

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	634473	570343	597470	622482	646042	620319	1.048

(PSOH) both having M_n of 1700 are compared at heating rate of 10°C/min. It has been found that the T_g of PSOH was 13°C higher (64°C) than the corresponding PS (51°C). Results are shown below:

Polystyrene		Hydroxy terminated PS	
$M_n \times 1000$	T_g (°C)	$M_n \times 1000$	T_g (°C)
0.95	27	0.90	37
1.7	51	1.7	64
3.7	71	3.7	72