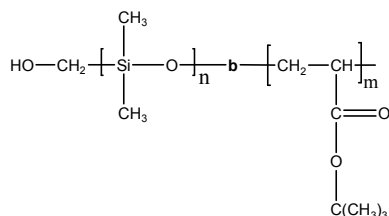


Sample Name: Poly(dimethyl siloxane-b-t-butyl acrylate)

Sample #: P6448-DMStBuA

Structure:

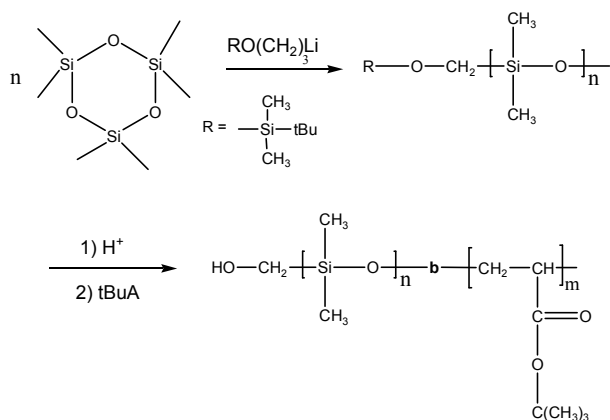


Composition:

$M_n \times 10^3$ DMS-b-tBuA	M_w/M_n (PDI)
8.0-b-36.0	1.57

Synthesis Procedure:

Poly(dimethyl siloxane-b-t-butyl acrylate) is prepared by living anionic polymerization of hexamethylcyclotrisiloxane followed by free radical polymerization of t-butyl acrylate. The reaction scheme is shown below:



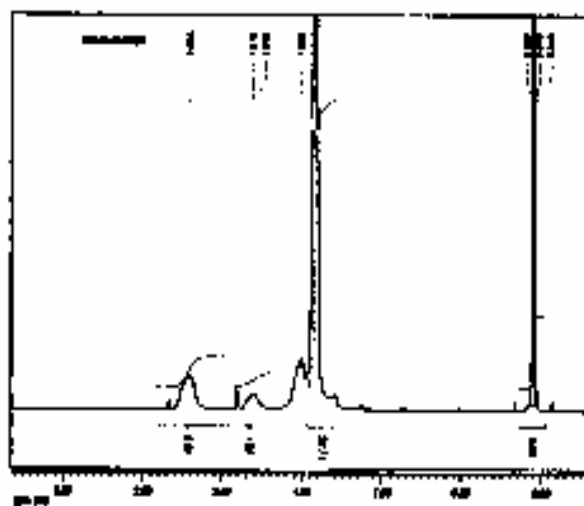
Characterization:

An aliquot of the anionic poly(dimethyl siloxane) block was terminated before addition of t-butyl acrylate and analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The final block copolymer composition was calculated from ^1H -NMR spectroscopy by comparing the peak area of the siloxane protons at about 1.4 ppm. Block copolymer PDI is determined by SEC.

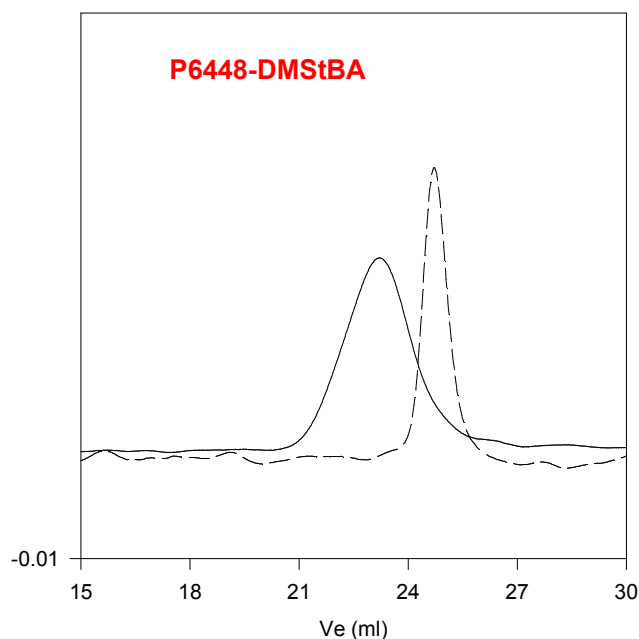
Solubility:

Poly(dimethylsiloxane-b-t-butyl acrylate) is soluble in THF, chloroform and dichloromethane. It is reprecipitated in methanol/water mixture.

^1H NMR spectrum of the sample:



SEC profile of the block copolymer:



Size exclusion chromatography of poly(DMS-b-acrylate):

- Polydimethylsiloxane, $M_n=8000$, $M_w=8600$, $PI=1.08$
- Block Copolymer PDMS(8000)-b-PtBA(36000), $PI=1.57$

Thermal analysis of the sample# P6448-DMStBuA

Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 10°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).

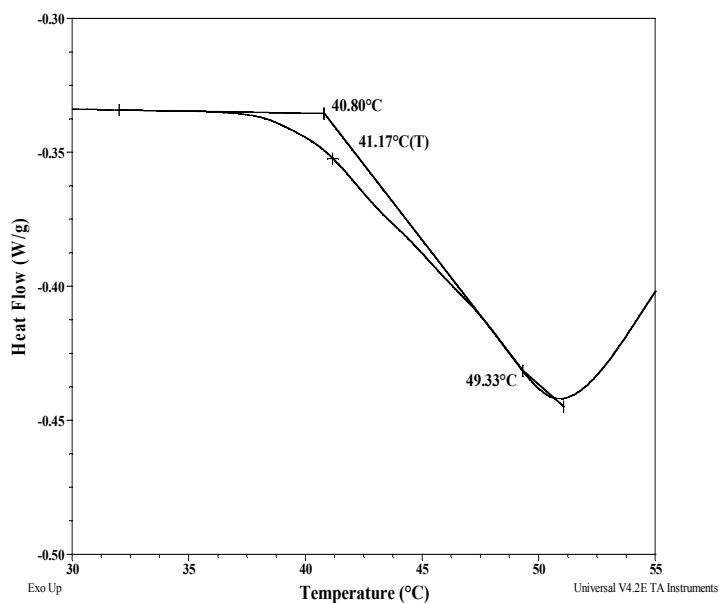
Melting and crystallization curve for the sample

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

Thermal analysis results at a glance

Sample	T_m (°C)	T_c (°C)	T_g (°C)
DMS block	-48	-	-127 (Lit.)
tBuA block	-	-	41

Thermogram for tBuA block



Melting curve for DMS block:

