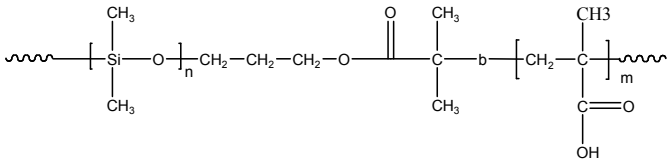
Sample Name:
Poly(dimethyl siloxane -b- Methacrylic acid)

Sample #: P11309-DMSMAA

Structure:



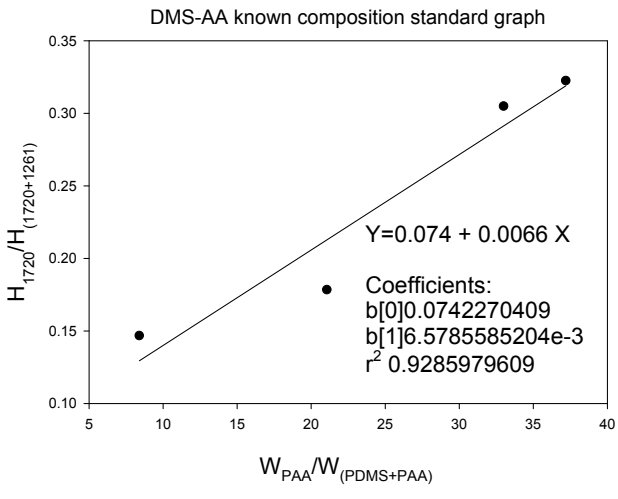
Composition:

Mn x 10^3 PDMS-b-PMAA	PDI
10.0-b-0.60	1.14
T_m for DMS block: -45°C	T_g for MAA block: (not detected)

Synthesis Procedure:
For the detailed of the synthesis please consult our paper: J.X. Zhang, S.K. Varshney, **"**Simple Approach for the Scale-up Production of Block Copolymer of Polydimethylsiloxane with (Meth)acrylic Ester Monomers" Designed Monomers and Polymers, 2002, 1, 79.

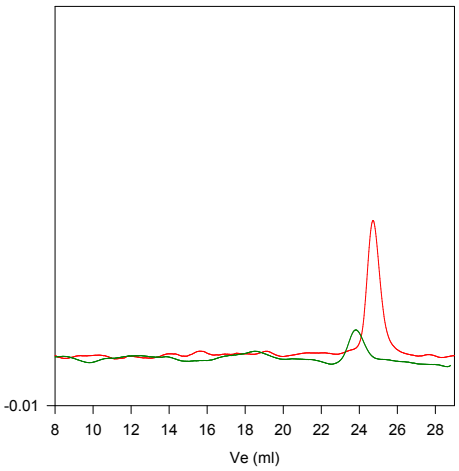
Characterization:
An aliquot of the Poly(dimethyl siloxane) block was terminated before controlled radical polymerization of the trimethyl siloxyacrylate block and analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The final block copolymer composition was calculated from ^{1}H-NMR spectroscopy by comparing the peak area of the siloxane protons at about 0 ppm with the peak area of the methacrylic acid protons at about 1-2.5 ppm. The composition is also calculated according to FTIR showed as followed graph. The results from NMR and FTIR are compatible.
Note: The calculation of the composition bases on the FTIR standard fit line obtained from polymers that have known composition.

FTIR standard line for composition calculation:

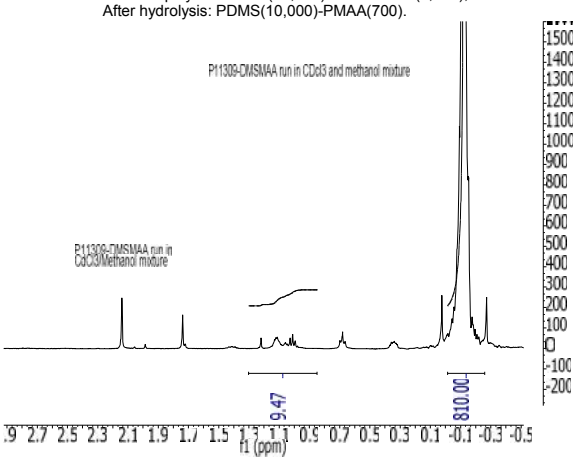


Solubility:
Poly(dimethyl siloxane-b-methacrylic acid) is soluble in in MeOH, ethanol and are not soluble in $CHCl_3$.

P11309-DMSTMSMA
(precursor of P11309-DMSMAA)



Size exclusion chromatography of poly(DMS-b-benzyl methacrylate):
Polydimethylsiloxane, M_n=10,000, M_w=10,800, PI=1.08
Block Copolymer PDMS(10,000)-b-PTMS-MA(1,200), PI=1.14
After hydrolysis: PDMS(10,000)-PMAA(700).



Thermal analysis of the sample:
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). The melting temperature (T_m) was taken as the maximum of the endothermic peak.

Melting curve for DMS: