Sample Name:

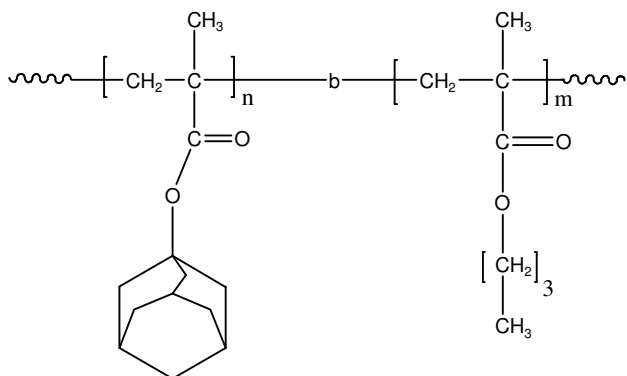**Poly(1-Adamantyl methacrylate-b-n-butyl methacrylate)**

Sample #: P9383-ADMMAnBuMA

Structure:

Composition:

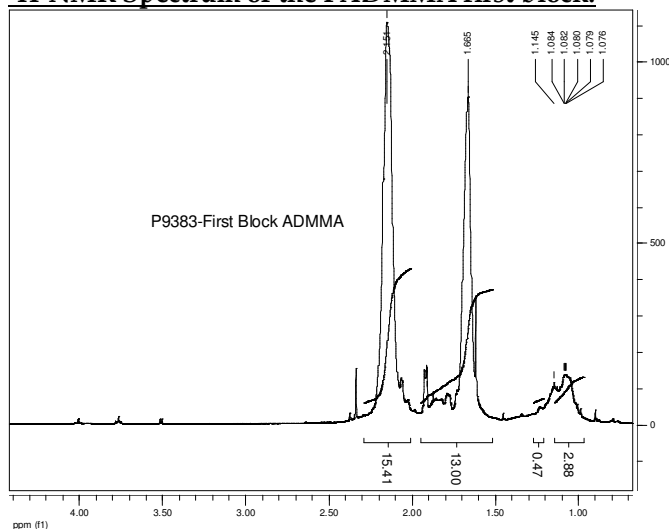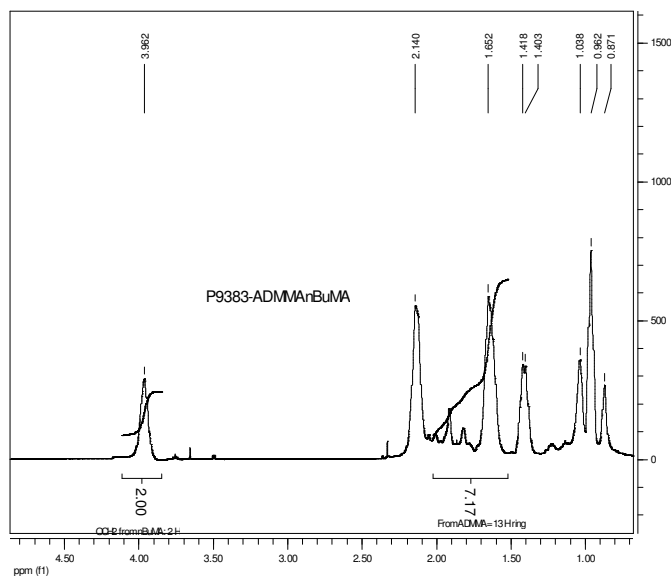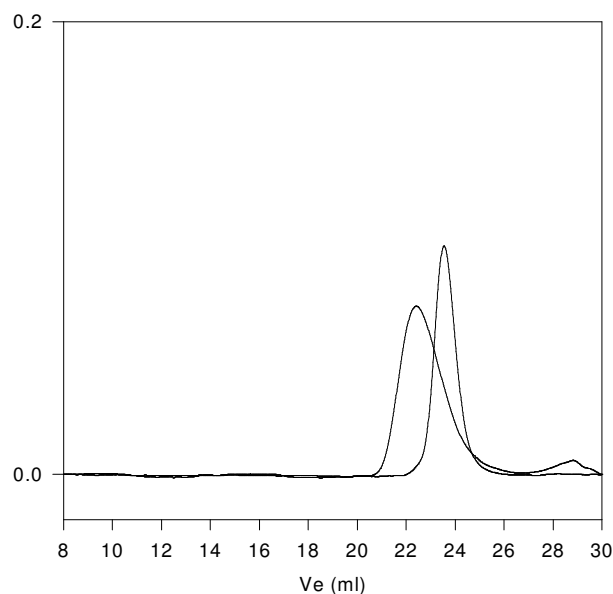| Mn x 10³ ADMMA-b-PnBuMA	PDI
16.0-b-13.0	1.4
Microstructure of PADMMA block	Syndio:hetero:iso rich in atactic > 70%
T_g for ADMA block:202°C	T_g for nBuMA block:26°C

Synthesis Procedure: *Prepared by anionic process.*
Characterization:

An aliquot of the anionic poly(ADMA) block was terminated before addition of MMA monomer 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.

Solubility:

Polymer is soluble in THF, CHCl₃, toluene and dioxane. The polymer precipitates from hexanes, methanol and ethanol.

¹H-NMR Spectrum of the PADMMA first block:

¹H-NMR Spectrum of the block copolymer:
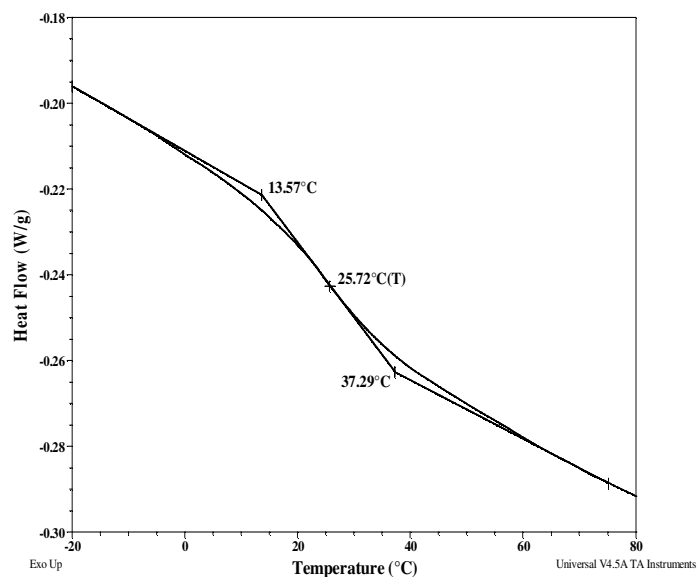

SEC of the block copolymer:

P9383-ADMMAnBuMA

Size exclusion chromatography:

—— Poly(Adamantyl methacrylate), M_n=16000, M_w=17500, PI=1.10

—— Block Copolymer PADMMA(16000)-b-PnBuMA(13000), PI=1.4 composition from H NMR

Thermal analysis of P9383-ADMMMAnBuMA:

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) of the sample has been considered.

DSC thermogram for PnBuMA block:

Thermogram for PADMMA block:

DSC thermogram for PnBuMA block — Heat Flow (W/g) vs Temperature (°C). Labels: 13.57°C, 25.72°C(T), 37.29°C. Exo Up. Universal V4.5A TA Instruments

Thermogram for PADMMA block — Heat Flow (W/g) vs Temperature (°C). Labels: 194.89°C, 201.88°C(T), 218.00°C. Exo Up. Universal V4.5A TA Instruments