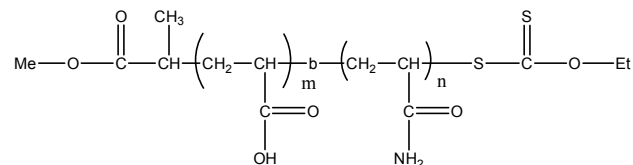


Sample Name: Poly(acrylic acid-b-acrylamide)

Sample #: P7563E-AAAMD

Structure:



Composition:

| | |
|---|--------------------------------------|
| Mn x 10 ³ AA-b-AMD | Mw/Mn (PDI) |
| 6.5-b-43.0 | 1.25 |
| T _g (°C) for AMD block: 189 | T _g (°C) for AA block: 82 |

Synthesis Procedure:

Poly (acrylic acid-b-acrylamide) is synthesized by RAFT polymerization of acrylic acid and acrylamide using 4,4'-azo(4-cyanopentanoic acid) as initiator and xanthate as chain transfer agent.

Characterization:

An aliquot of the polyacrylic acid block was terminated by precipitating in hexane before addition of acrylamide and analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI) using water containing 0.1M NaNO₃ and 0.01M NaH₂PO₄ as eluent. The block copolymer composition was then calculated from ¹H-NMR spectroscopy by comparing the peak area of the acrylic acid proton with the acrylamide protons.

Thermal analysis:

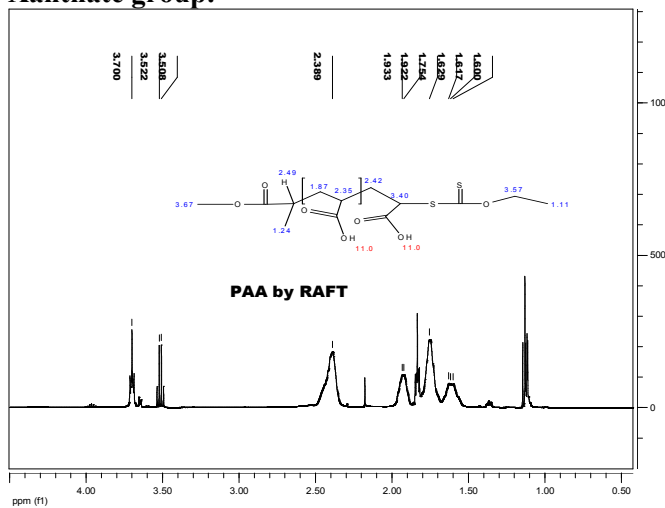
Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 10°C/min. The midpoint of the slope change of the heat flow plot of the second heating scan was considered as the glass transition temperature (T_g).

Solubility:

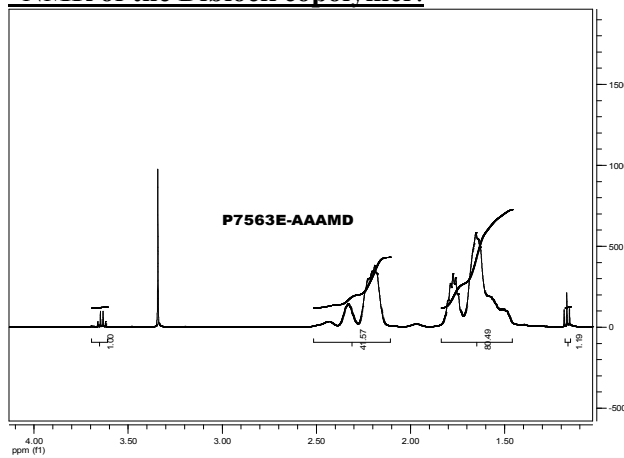
Polymer is soluble in water.

¹H-NMR Spectrum of the block copolymer:

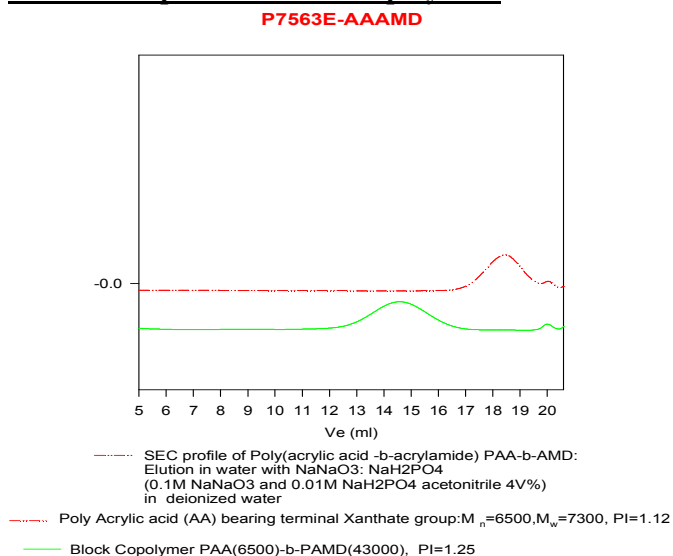
1. HNMR of the Poly acrylic acid bearing terminal Xanthate group:



¹H-NMR of the Diblock copolymer:



SEC of Sample of the block copolymer:



DSC thermograms for AA & AMD block:

