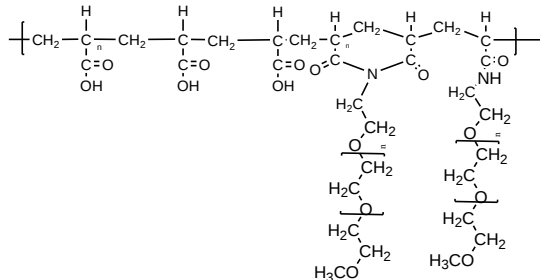
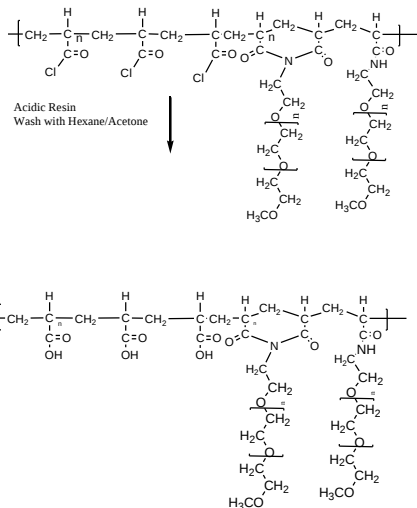


Poly(acrylic acid)-graft-poly(ethylene oxide), grafting on amide/imide linkage

Structure:



Composition	
M _n x 10 ³	PDI
45.0 (Acrylic acid mol%: 7)	1.5
Mn of PEG Branch: 2.0 Lot # P 6327 # of Branch 20 per 70 units of AA	1.05
Mn of Back Bone PAA: 5.0 Lot # p11381	1.10

$$\left[\text{CH}_2 - \underset{\text{C} \begin{smallmatrix} \text{O} \\ \text{Cl} \end{smallmatrix}}{\overset{\text{H}}{\text{C}}} - \text{CH}_2 - \underset{\text{C} \begin{smallmatrix} \text{O} \\ \text{Cl} \end{smallmatrix}}{\overset{\text{H}}{\text{C}}} - \text{CH}_2 - \underset{\text{C} \begin{smallmatrix} \text{O} \\ \text{Cl} \end{smallmatrix}}{\overset{\text{H}}{\text{C}}} \right] \xrightarrow{\text{H}_2\text{NCH}_2\text{OCH}_2\text{CH}_2\text{OCH}_2\text{CH}_2\text{OCH}_2\text{CH}_2\text{OH}}$$


The polymer was analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The copolymer composition was calculated from ^1H -NMR spectroscopy.

6b327-EGOC3HNH2

Chemical shifts (ppm) labeled on the right side of the spectrum:

- 2.000
- 2.867
- 2.877
- 2.887
- 3.387
- 3.478
- 3.487
- 3.506
- 3.516
- 3.526
- 3.536
- 3.546
- 3.556
- 3.566
- 3.576
- 3.586
- 3.596
- 3.606
- 3.616
- 3.626
- 3.636
- 3.646
- 3.656
- 3.666
- 3.676
- 3.686
- 3.696
- 3.706
- 3.716
- 3.726
- 3.736

Integration values labeled below the peaks:

- 5.09
- 2.00
- 2.72
- 1.19
- 4.05
- 103.36
- 1.20

1. SEC of Blend of PAA and the Amino terminated PEG in THF at 35 oC:
Showing micellization of PAA homopolymer and PEG-NH₂ eluted

Size exclusion chromatography of amino-terminated Poly(ethylene oxide)
Mn of 2000 and PAA Mn of 5000

PAA shows micellization in THF

Size exclusion chromatography of amino-terminated Poly(ethylene oxide)
Mn of 2000 and PAA Mn of 5000

PAA shows micellization in THF

After reaction Mn total : 45,000 Mw/Mn 1.5