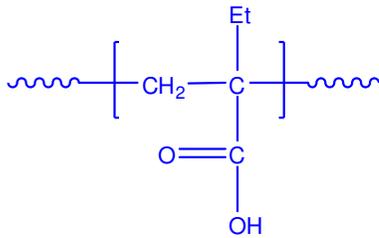


Sample Name:
Poly(α -ethyl acrylic acid)

Sample #: P3453-EAA

Structure:

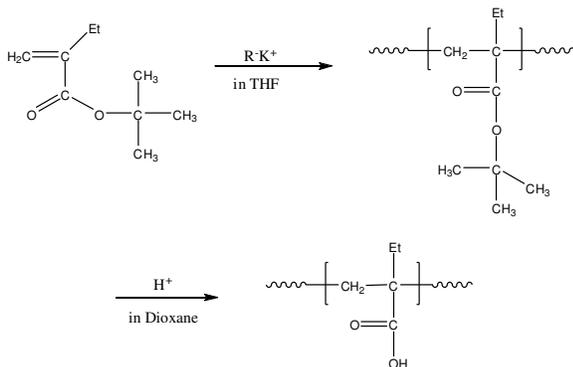


Composition:

Mn x 10 ³	PDI
5.5	1.2
T _g (°C)	33

Synthesis Procedure:

Poly(α -ethyl acrylic acid) is synthesized by anionic polymerization of its tert-butyl ester, followed by acidic hydrolysis; the reaction scheme is shown below.



Characterization:

The molecular weight and polydispersity index (PDI) of Poly(*t*-butyl α -ethylacrylate) are obtained by size exclusion chromatography in THF. Hydrolysis process was monitored by FT-IR spectrum.

Thermal analysis:

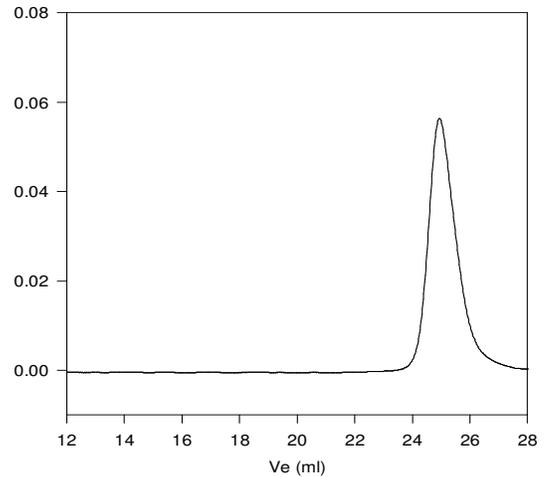
Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 10°C/min. The midpoint of the slope change of the heat flow plot of the second heating scan was considered as the glass transition temperature (T_g).

Solubility:

The acid-form polymer is soluble in ethanol, methanol and alkaline solution. It is precipitated from Hexane, ether, even pure water.

SEC of Homopolymer:

P3453-EtEtA Precursor for P3453-EAA

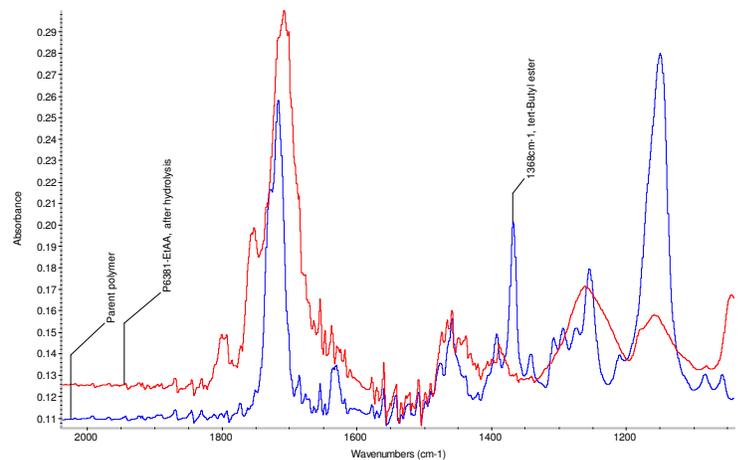


Size exclusion chromatography of poly(ethyl ethylacrylate):

Mn = 6300; Mw = 7600; PI = 1.20.

after Hydrolysis of Ester to COOH: Mn 5500 Mw: 6600 Mw/Mn 1.2

FT-IR spectrum of acid-form polymer:



DSC thermogram for the polymer:

