

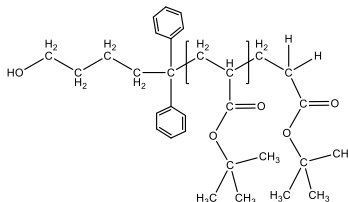
Product Profile

Identification

Product Name: Poly(tert-butyl acrylate), α -hydroxy-terminated

Product Lot Number: P44554-tBuAOH

Product Chemical Architecture:

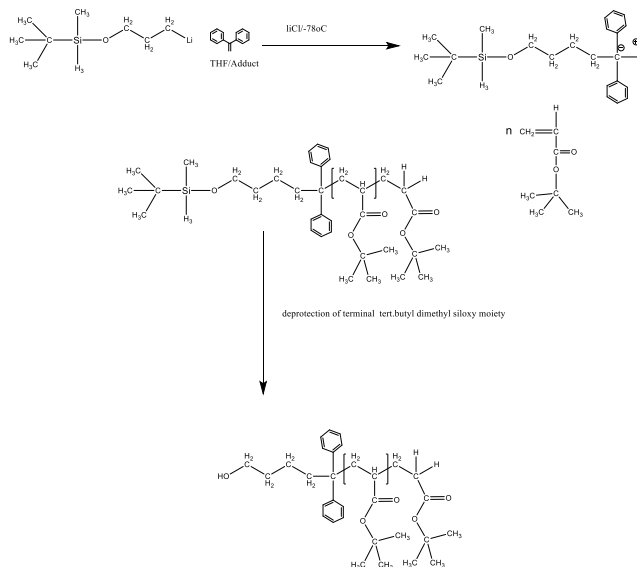


Composition:

Mn x 10 ³	Mw/Mn (PDI)	OH functionality%
3.5	1.2	90 % (HNMR) 10 % OH protected
Dp – PtBuA ₃₁ from HNMR		

Method of Synthesis

The polymer is synthesized by anionic polymerization using Hydroxyl protected initiator sec Butyl-lithium as initiator as illustrated below.



Solubility of polymer in different solvents

THF	✓	Acetone	✓
CHCl ₃	✓	CHCl ₃	✓
Toluene-Hot	✓	Methanol-Hot	Opaque soluble

Purification of Polymer to cleave OH protected group:

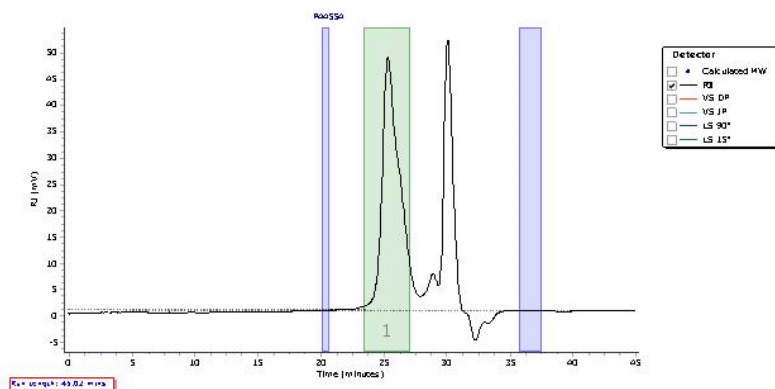
Since tert-butyl ester are sensitive for hydrolysis under acidic condition therefore the use of TFA and HCl was avoided. Perchloric acid, p-toluene sulfonic acid or (Bu)₄NF was used by dissolving polymer in toluene and added with 30 % water with one of the above-mentioned catalysts to cleave terminal OH protected tert butyl dimethyl siloxy unit. It was noticed that the cleavage is sensitive to its molecular weight. The % of cleavage remains at 75-85% by stirring Toluene/water solution for over 2 weeks at 40 °C.

A. Gel Permeation Chromatography (GPC), SEC- Profile for PtBuA-OH:

Agilent GPC/SEC Software

P44554

Chromatogram Plot



Molecular Weight Averages

Peak	Mp (g/mol)	Mn (g/mol)	Mw (g/mol)	Mz (g/mol)	Mz+1 (g/mol)	Mv (g/mol)	PD
Peak 1	5015	3750	4504	5390	6485	5228	1.201

B. NMR (HNMR) spectrum of polymer:

