

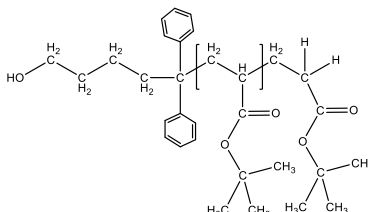
Product Profile

Identification

Product Name: POLY(TERT-BUTYL ACRYLATE), A-HYDROXY-TERMINATED

Product Lot Number: P44560-tBuAOH

Product Chemical Architecture:

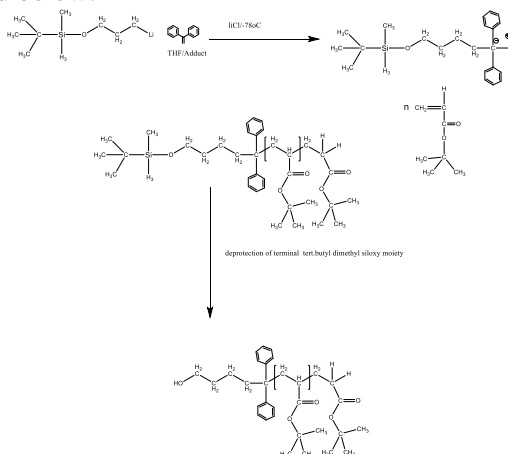


Composition:

Mn x 10 ³	Mw/Mn (PDI)	OH functionality%
2.5	1.14	98 (¹ H NMR) >2 % OH protected
Dp – PtBuA ₁₉ from ¹ H NMR		

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.

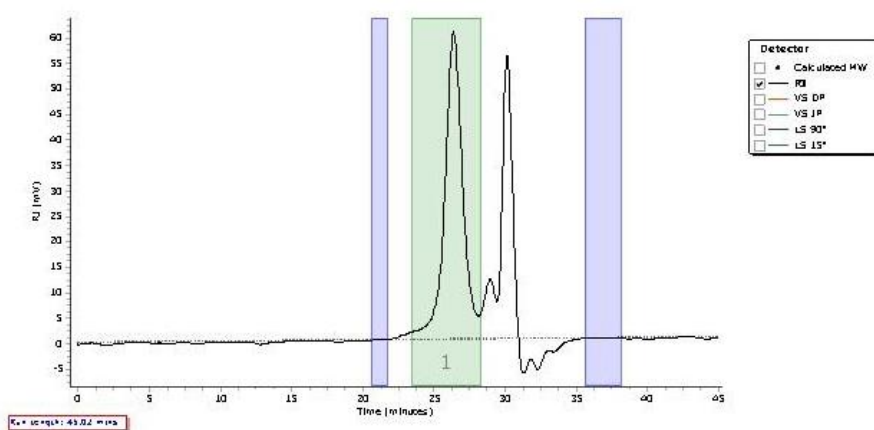
Since tert-butyl ester are sensitive for hydrolysis under acidic condition therefore the use of TFA and HCl was avoided. Perchloric acid, p-toluene sulfonic acid or (Bu)₄NF was used by dissolving polymer in toluene and added with 30 % water with one of the above-mentioned catalysts to cleave terminal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

The % of cleavage remains within 75-85% by stirring Toluene/water solution for over 2 weeks at 40 °C.

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

Chromatogram Plot

P44560-tBuAOH



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	2407	2272	2592	3065	3820	2959	1.141

B. NMR (HNMR) spectrum of polymer:

