

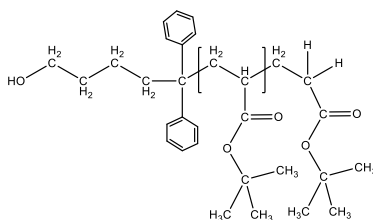
Product Profile

Identification

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

Product Lot Number: P9754AR-tBuAOH

Product Chemical Architecture:

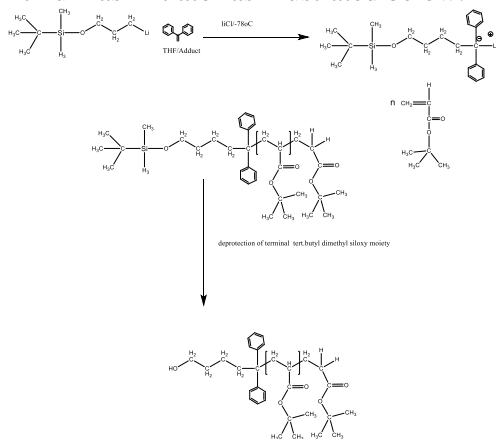


Composition:

Mn x 10 ³	Mw/Mn (PDI)	OH functionality%
3.5	1.08	95 (¹ H NMR) 5 % OH protected
Dp – PtBuA ₂₈ 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

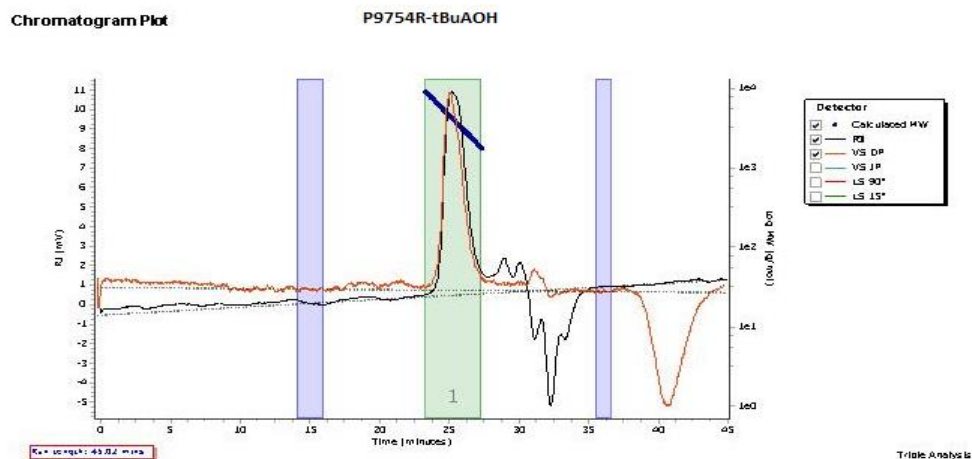
THF	✓	Acetone	✓
CHCl ₃	✓	CHCl ₃	✓
Toluene-Hot	✓	Methanol-Hot	Opaque soluble

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 catalyst 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 95% by stirring Toluene/water solution for over 2 weeks at 40 °C.

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



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	4260	3570	3864	4156	4443	4072	1.082

B. NMR (HNMR) spectrum of polymer:

