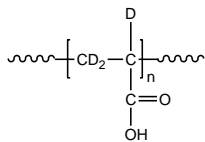


Sample Name: Deuterated Poly (acrylic acid-d3)

Sample #: P43636-d3PAA

Structure:



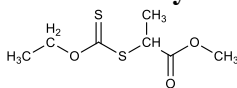
Composition:

Mn x 10 ³	PDI
7.0	1.04

Synthesis Procedure:

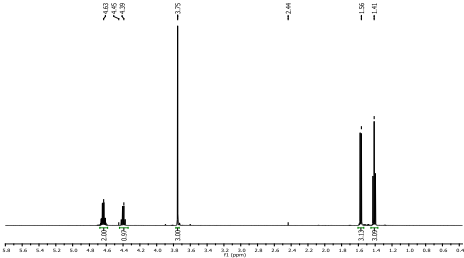
Poly (d3 acrylic acid) is obtained by the RAFT polymerization process for d3AA monomer in D2O.

RAFT reagent used in this synthesis:



Chemical Formula: C₇H₁₂O₃S₂
Molecular Weight: 208.3

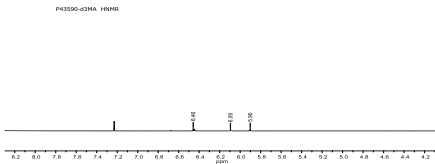
¹H NMR spectrum of RAFT (400 MHz, CDCl₃):



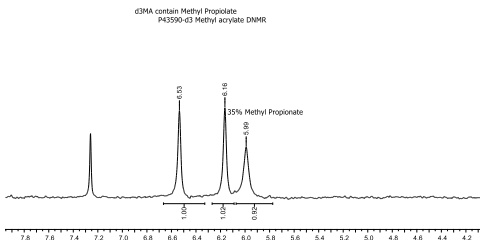
Characterization:

The product was characterized by size exclusion chromatography (SEC) and ¹H NMR. Molecular weight of the polymer was determined by converting poly acrylic acid to d3 polyn-butylacrylate by trans-esterification reaction.

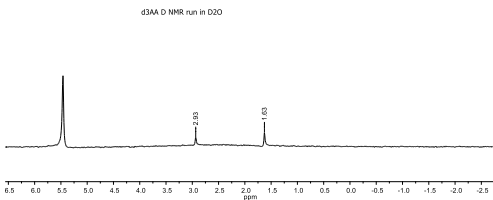
D NMR of Methyl acrylate monomer before hydrolysis of ester to acid)



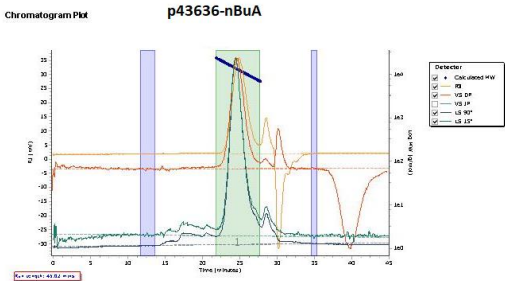
HNMR of the D3 Methyl acrylate (before hydrolysis to acid):



D NMR spectrum of Polymer in H2O:



SEC elugram of the Poly d3nBuA in THF:
Pd3 AA was converted to d3 nBuA by trans-esterification to determin Mn of the polymer:
Mn of PAA will be calculated accordingly:



Peak	Mp (g/mol)	Mn (g/mol)	Mw (g/mol)	Mz (g/mol)	Mz+1 (g/mol)	Mn (g/mol)	PDI
Peak 1	12552	11795	12276	12755	13227	12686	1.041

Mn for PAd3: 7,000