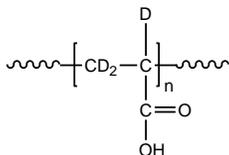


Sample Name: Deuterated Poly (acrylic acid-d3)

Sample #: P43636A-d3PAA

Structure:



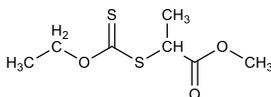
Composition:

Mn x 10 ³	PDI
2.5	1.14

Synthesis Procedure:

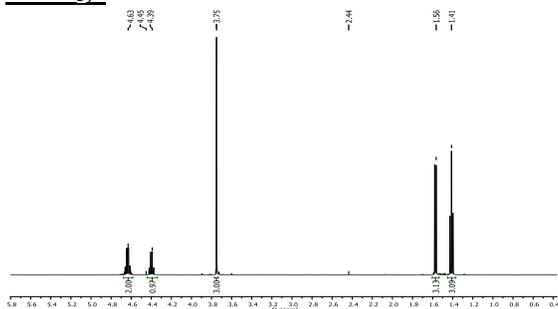
Poly (d3 acrylic acid) is obtained by the RAFT polymerization process for d3AA monomer in D2O.

RAFT reagent used in this synthesis:



Chemical Formula: C₇H₁₂O₃S₂
Molecular Weight: 208.3

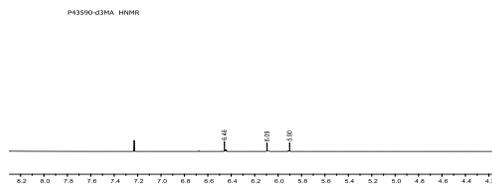
¹H NMR spectrum of RAFT (400 MHz, CDCl₃):



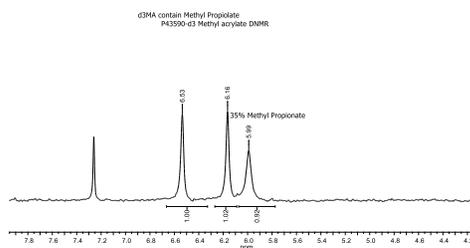
Characterization:

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 poly-n-butylacrylate by trans-esterification reaction.

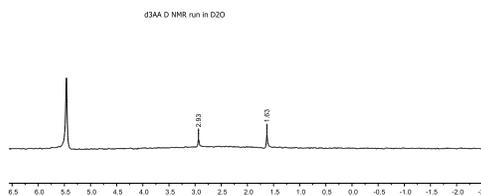
D NMR of Methyl acrylate monomer before hydrolysis of ester to acid)



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

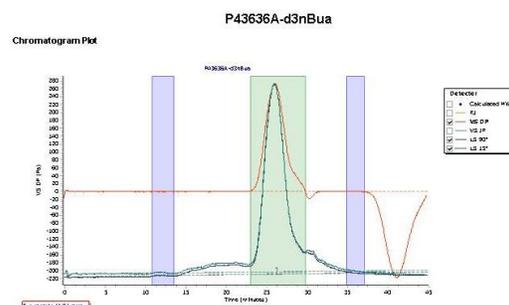


D NMR of Polymer in H2O:



SEC elugram of the Poly d3nBuA in THF:

Agilent GPC/SEC Software



Peak	Mp (g/mol)	Mn (g/mol)	Mv (g/mol)	Mz (g/mol)	Mz-1 (g/mol)	Mz (g/mol)	PDI
Peak 1	627.2	5624	6525	7456	6376	7387	1.16

Pd3 AA was converted to d3nBuA by trans-esterification to determine Mn of the polymer: Mn of PAA will be calculated accordingly. Mn for PAA d3: 2,500