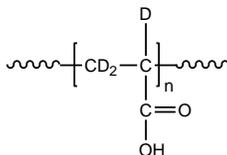


Sample Name: Deuterated Poly (acrylic acid-d3)

Sample #: P42590C-d3PAA

Structure:



Composition:

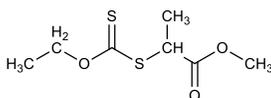
Mn x 10 ³	PDI
2.3	1.5

d3 AA monomer d%: 75%

Synthesis Procedure:

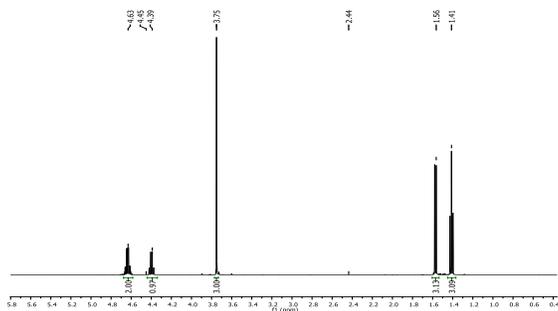
Poly (d3 acrylic acid) is obtained by the RAFT polymerization process for d3AA monomer in D2O.

RAFT reagent used in this synthesis:



Chemical Formula: C₇H₁₂O₃S₂
Molecular Weight: 208.3

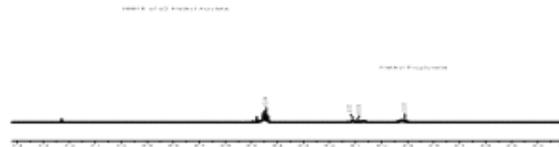
¹H NMR spectrum of RAFT (400 MHz, CDCl₃):



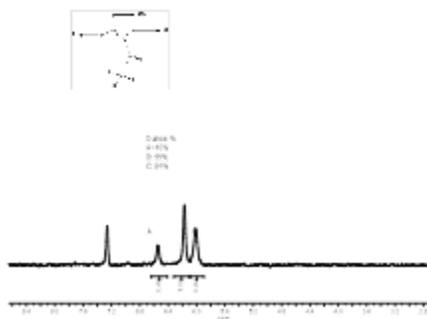
Characterization:

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

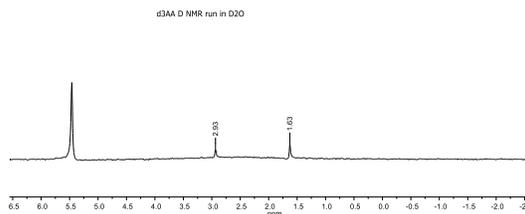
D NMR of Methyl acrylate monomer before hydrolysis of ester to acid)



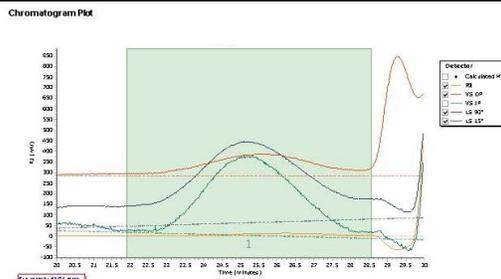
HNMR spectrum of the D3 Methyl acrylate (before hydrolysis to acid):



D NMR spectrum of Polymer in H2O:



SEC elugram of the Poly d3nBuA in THF: Pd3 AA was converted to d3 nBuA by transesterification to determine 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)	Mv (g/mol)	PD
Peak 1	48521	46821	61981	9121	12385	8645	1.518

Mn: 2,300