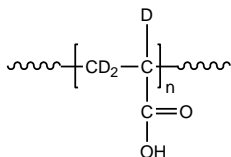


Sample Name: Deuterated Poly (acrylic acid-d3)

Sample #: P43590-d3PAA

Structure:



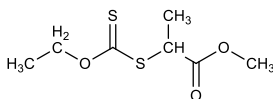
Composition:

| Mn x 10 ³ | PDI |
|----------------------|------|
| 15.0 | 1.08 |

Synthesis Procedure:

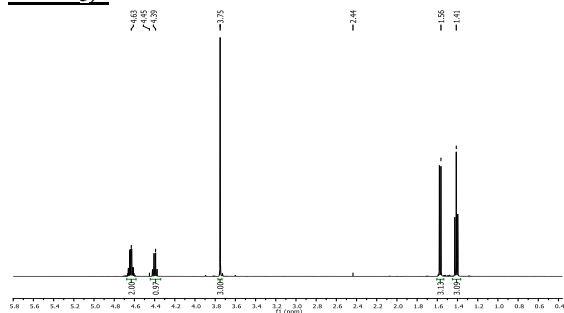
Poly (d3 acrylic acid) is obtained by the RAFT polymerization process for d3AA monomer in D2O.

RAFT reagent used in this synthesis:



Chemical Formula: C₇H₁₂O₃S₂
Molecular Weight: 208.3

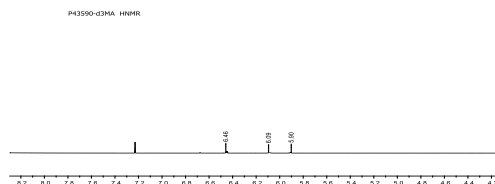
¹H NMR spectrum of RAFT (400 MHz, CDCl₃):



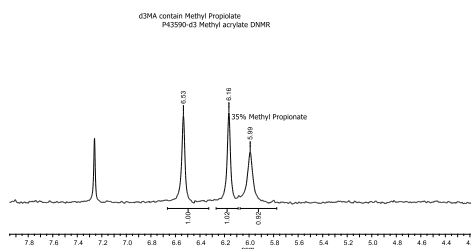
Characterization:

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.

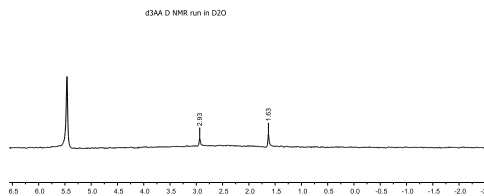
D NMR of Methyl acrylate monomer before hydrolysis of ester to acid)



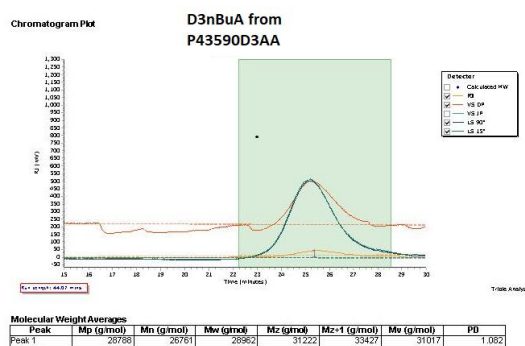
HNMR of the D3 Methyl acrylate (before hydrolysis to acid):



D NMR of Polymer in H2O:



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



Mn: 15,000