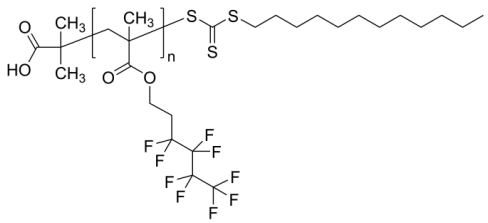
Sample Name: **Poly(2-[perfluorobutyl]ethyl methacrylate)**
Or Poly (3,3,4,4,5,5,6,6,6-nanofluorohexyl methacrylate)

Sample #: **P42191B-9FBEMA**

Structure:



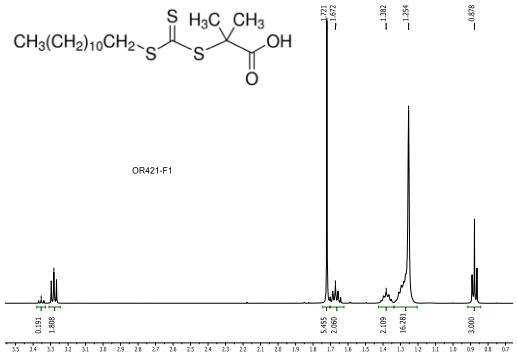
Composition:

Mn x 10^3	PDI
35.0	1.4
CAS Number: 1799-84-4	

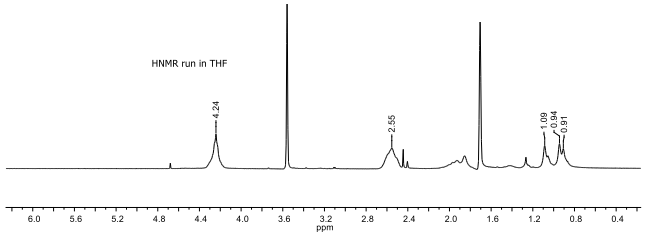
Synthesis Procedure:
The polymer was prepared by RAFT polymerization process.

Characterization:
Fluorinated polymers have unique properties including low Refractive Indices (RIs) that make molecular weight determination by alone RI detector prone to error. The low molecular weights polymer Mn < 10K can be determined qualitatively in THF at 35 ºC using triple de3tectors and compare the data with values obtained by HNMR. Poly (meth)acrylates with high contents of Fluorene contents was found insoluble in acetone (Mn > 20,000) and can be solubilize in the presence of fluorinated solvents such as hexafluoro-isopropanol. The fluorinated solvents can increase the solubility of the polymer and improve the signal-to-noise ratio of an RI detector. We have used mixture of Acetone: hexafluoroisoproanol solvents (70:30) v/v) ratio to elute these polymers with high contents of fluorene as pendant groups. To accurately determine the molecular weights of these polymers, a triple detection method that utilizes an RI detector, right-angle light scattering, and low-angle light scattering (λ0 = 670 nm) detectors, and a differential viscometer was employed. The results were compared using PMMA standards.

^{1}H NMR spectrum of the RAFT macroinitiator:



HNMR of the polymer carried out in Acetone:



SEC elugram of the Sample: