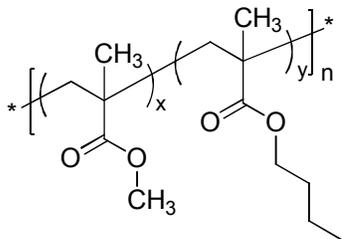


## Sample Name:

**Poly(methyl methacrylate-co-n-butyl methacrylate) random copolymer**

**Sample #: P40429-MMAnBuMAran**

## Structure:



## Composition:

|                               |                          |
|-------------------------------|--------------------------|
| $M_n \times 10^3$ (g/mol)     | 58                       |
| $M_w/M_n$                     | 1.6                      |
| Molar ratio MMA : nBuMA:      | 52:48                    |
| Glass transition temperature: | $T_g = 62^\circ\text{C}$ |

## Synthesis Procedure:

Poly(methyl methacrylate-co-n-butyl methacrylate) was synthesized by living anionic polymerization.

## Characterization:

MMA:nBuMA ratio was calculated from  $^1\text{H}$  NMR spectroscopy data by comparing the integration of the  $-\text{OCH}_2-$  protons of nBuMA to the integration of methoxy group of MMA.

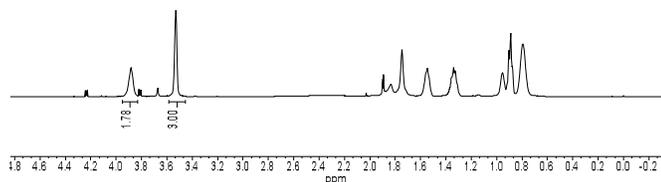
The average molecular weight and polydispersity index were determined by size exclusion chromatography (SEC).

Thermal analysis of the sample was done on a TA Q100 differential scanning calorimeter (DSC) at a heating rate of  $10^\circ\text{C}/\text{min}$ . The glass transition temperature ( $T_g$ ) and melting point ( $T_m$ ) were measured at a scan rate of  $10^\circ\text{C}/\text{min}$  shortly after creating thermal history of the sample.

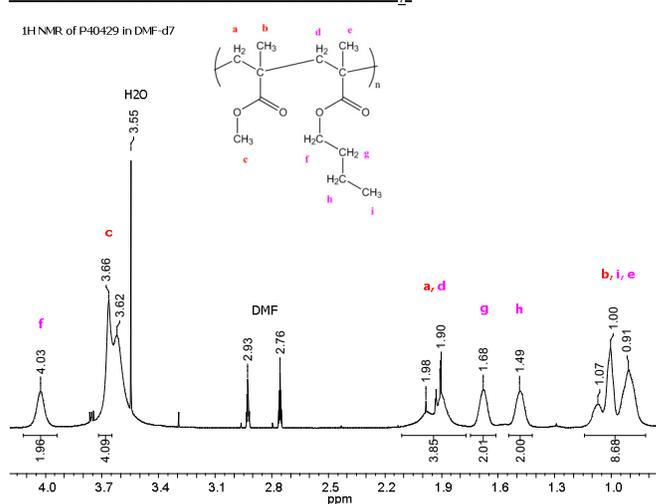
**Solubility:** The polymer is soluble in THF, DMF.

## $^1\text{H}$ NMR of MMAnBuMAran in $\text{CDCl}_3$ :

P40429-MMAnBuMAran



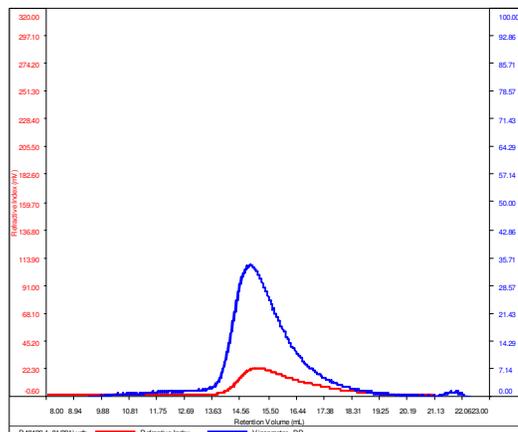
## $^1\text{H}$ NMR of MMAnBuMAran in $\text{DMF-d}_7$ :



## SEC elugram of the polymer in DMF:

### P40429-MMAnBuMAran

|           |                            |
|-----------|----------------------------|
| Conc      | 3.5021                     |
| dn/dc     | 0.0650                     |
| Solvent   | DMF w 0.023M LiBr          |
| Flow Rate | 0.7000                     |
| Method    | PS80k_August-2017-0000.vcm |



| Sample               | Mn     | Mw     | Mp     | Mw/Mn | IV     |
|----------------------|--------|--------|--------|-------|--------|
| P40429-1_01(391).vdt | 57,743 | 93,781 | 92,323 | 1.624 | 0.2160 |

## DSC thermogram (2<sup>nd</sup> heating scan, $10^\circ\text{C}/\text{min}$ ):

