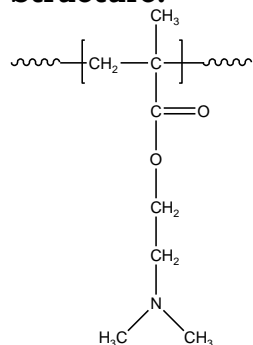Sample Name:
Poly(N,N-dimethylaminoethyl methacrylate)

Sample #: **P18448-DMAEMA**
 (obtained by anionic polymerization)
Structure:

$$CH_3$$
$$\sim\!\!\sim\!\!\sim[CH_2\!-\!\underset{\underset{\displaystyle C=O}{|}}{\overset{\overset{\displaystyle CH_3}{|}}{C}}]\!\sim\!\!\sim\!\!\sim$$

CH₃
⎯[CH₂—C]⎯
        |
        C=O
        |
        O
        |
        CH₂
        |
        CH₂
        |
        N
      /   \
   H₃C   CH₃

Composition:

Mn × 10³	PDI
91.5	1.09

Synthesis Procedure:

Poly(N,N-dimethyl aminoethyl methacrylate) is obtained by anionic or free radical or by GTP process.

Characterization:

The molecular weight and polydispersity index (PDI) are obtained by size exclusion chromatography (SEC) in THF. SEC analysis was performed on a Varian liquid chromatograph equipped with refractive and UV light scattering detectors. Three SEC columns from Supelco (G6000-4000-2000 HXL) were used with triple detectors from Viscotek Co.
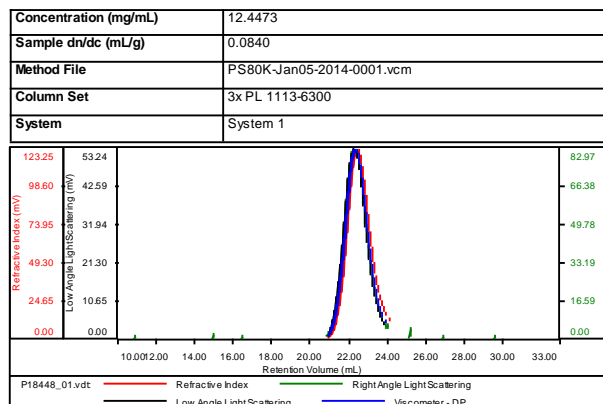
Thermal analysis:

Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of $10^{o}C/min$. The midpoint of the slope change of the heat flow plot of the second heating scan was considered as the glass transition temperature (T_g).

Solubility:

Poly(N,N-dimethylaminoethyl methacrylate) is soluble in THF, $CHCl_3$, toluene and dioxane. The polymer precipitates from hexanes, methanol and ethanol.

SEC of Homopolymer:
Sample ID: P18448-NN-DMAEMA

Concentration (mg/mL)	12.4473
Sample dn/dc (mL/g)	0.0840
Method File	PS80K-Jan05-2014-0001.vcm
Column Set	3x PL 1113-6300
System	System 1

P18448_01.vdt — Refractive Index — Right Angle Light Scattering — Low Angle Light Scattering — Viscometer - DP

Sample	Mn	Mw	Mp	Mw/Mn	IV
P18448_01.vdt	91,669	100,141	105,988	1.092	0.2509

P18448_01.vdt — Log Molecular Weight — Cumulative Weight Fraction — Normalized Mole Fraction