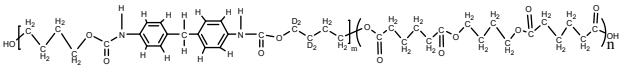
Sample Name:
Poly urethane based on Adipic acid, Butane diol and 4,4'-Methylenebis(phenyl isocyanate) MDI-based polyurethanes
Sample #: **P19401-PU**

Structure:



Composition:

Mw x 10^3	Mw/Mn (PDI)	Composition Oligomers:MDI m :n ratio (molar)	Tm (°C)
51.0	2.6	1:4	47.2, 53.4

Mn of Oligomers : Trimer of Adipic acid and 1,4 Butandiol: 10,000

Polyurethane is prepared in two-step procedure A: oligomerization of Adipic acid with Butane diol and then B reaction with MDI containing 1,4 butane diol.

Oligomers (g)	**MDI+Butane diol**
104g Mn 10,000 0.020 mole (end groups)	5.2x10-3 mole of MDI and 5.2x10-3 mole of Butane diol 1.3g (MDI) and 0.5g butane diol

Synthesis Procedure:

Polyurethane is prepared in two-step procedure A: oligomerization of Adipic acid with Butane diol and then B reaction with MDI.

Characterization:

An aliquot of the copolymer was analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The chemical composition was verified by ^{1}H-NMR spectroscopy, which is run in deuterated chloroform at 500MHz. The glass-transition temperature was measured by DSC.

Solubility:

Chloroform (Y)	THF (y)	DMF (Y)	DMSO (Y)

Figure:^{1}H NMR spectrum

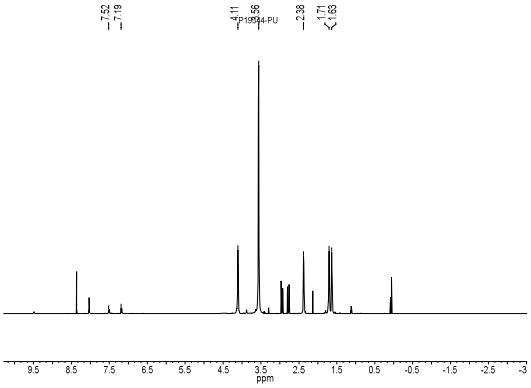
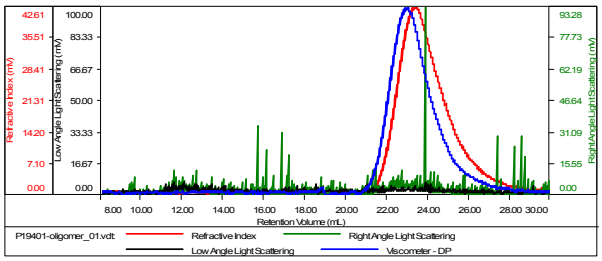


Figure: SEC profile of the polyurethane

Sample ID:P193401-Oligomers of adipic acid and butane diol

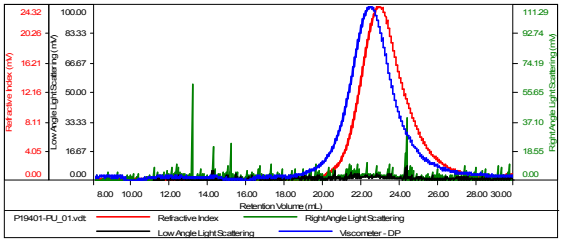
Concentration (mg/mL)	1.5432
Sample dn/dc (mL/g)	0.0700
Method File	PS80K-June30-2015-0000.vcm
Column Set	3x PL 1113-6300
Solvent	THF



Sample	**MW Number Average (Da)**	**MW Weight Average (Da)**	**MW at Peak (Da)**	**Polydispersi**	**Intrinsic Viscosity (dL/g)**
P19401-oligomer_01.vdt	9,566	14,185	11,900	1.483	1.1939

Sample ID:P19401-PU Protonated

Concentration (mg/mL)	0.8983
Sample dn/dc (mL/g)	0.0700
Method File	PS80K-June30-2015-0000.vcm
Column Set	3x PL 1113-6300
Solvent	THF



Sample	MW Number Average (Da)	MW Weight Average (Da)	MW at Peak (Da)	Polydispersi	Intrinsic Viscosity (dL/g)
P19401-PU_01.vdt	19,628	51,200	12,165	2.608	1.5367

DSC Thermogram: