

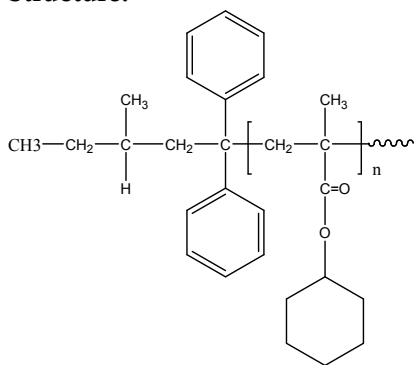
Sample Name: Poly(cyclohexyl methacrylate)

SEC of Sample

P4324-CHMA

Sample #: **P4324-CHMA**

Structure:

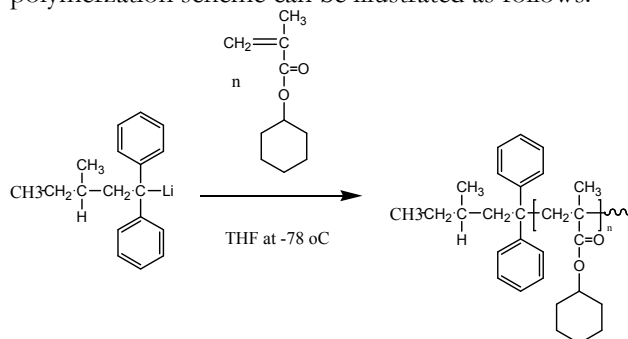


Composition:

Mn x 10 ³	PDI
11.0	1.08

Synthesis Procedure:

Poly(cyclohexyl methacrylate) is obtained by living anionic polymerization using sec.BuLi as initiator end capped with a unit of diphenyl ethylene. The polymerization of monomer is carried out in THF at -78 °C in the presence of LiCl as additive. For further details please see the following references.⁽¹⁻⁴⁾. The polymerization scheme can be illustrated as follows:

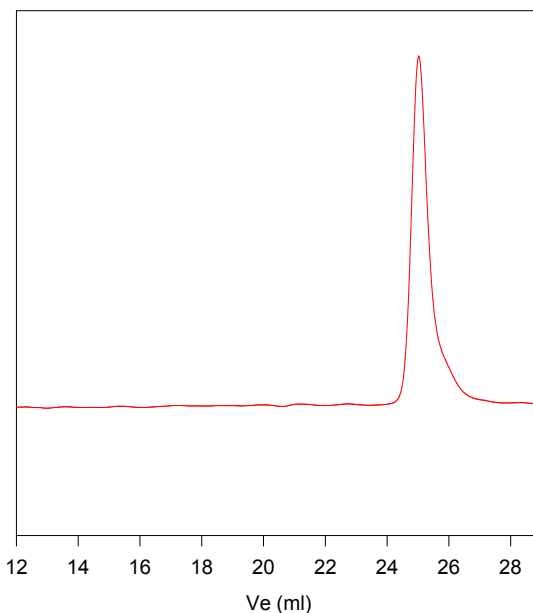


Characterization:

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. ¹H NMR analysis was carried out on Varian instrument at 500MHz.

Solubility:

Poly(methyl methacrylate) is soluble in THF, CHCl₃, toluene and dioxane. The polymer precipitates from hexanes, methanol and ethanol.



Size exclusion chromatograph of Poly cyclohexyl methacrylate:

M_n=11000, M_w=11900, PI=1.08

References for further information:

1. (a) S. K. Varshney, R. Fayt, Ph. Teyssie, US Patent 5,629,393, 1997 (b) Ph. Bayard, R. Fayt, Ph.Teyssie and S. K. Varshney, Vuillemin B, Phillipe, H, US patent 5,677,387, 1997.(c) Ph. Bayard, R. Fayt, Ph.Teyssie and S. K. Varshney, B,Vuillemin, H. Phillipe, US patent 5,687,534, 1997.(d) S. K. Varshney, R. Fayt, Ph. Teyssie, US Patent 5,723,559, 1998. (e) Ph. Teyssie, S. K. Varshney, R. Jerome, R. Fayt US patent, 4,826,941., 1989.
2. Ph. Teyssie, Ph. Bayard, R. Jerome, S. K. Varshney, and J. S. Wang, *35th IUPAC International Union of Pure & Applied Chemistry International Symposium on Macromolecules* 1994, 67.
3. Ph. Teyssie, R. Fayt, J. P. Hautekeer, C. Jacobs, R. Jerome, L. Leemans and S. K. Varshney *Makromolekular Chemie, Macromol. Symp.*, 1990, 32,61-73.
4. S. K. Varshney, J. P. Hautekeer, R. Fayt, R. Jerome, and Ph.Teyssie *Macromolecules*, 1990, 23, 2618-2622.

Thermal analysis of the sample P4324

Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 10°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). The T_g of the random polymer sample was found to be 107°C.

