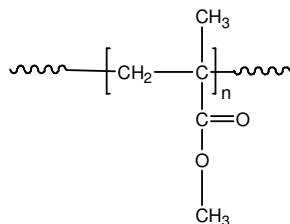


Sample Name: Poly(methyl methacrylate)
(Isotactic Form)

Sample #: P3967-iMMA
(iso contents over 95%)

Structure:



Composition:

| | |
|----------------------|------|
| Mn x 10 ³ | PDI |
| 10.0 | 1.17 |

Synthesis Procedure:=

Isotactic Poly(methyl methacrylate) is obtained by living anionic polymerization in toluene using a lithium silicate initiator.

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

Thermal analysis of the samples was carried out using a differential scanning calorimeter (TA Q100) at a heating rate of 10°C/min. The inflection glass transition temperature (T_g) of the sample has been considered.

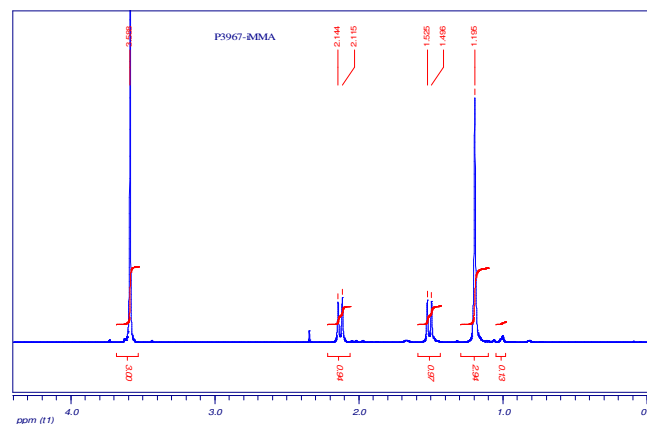
Solubility:

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

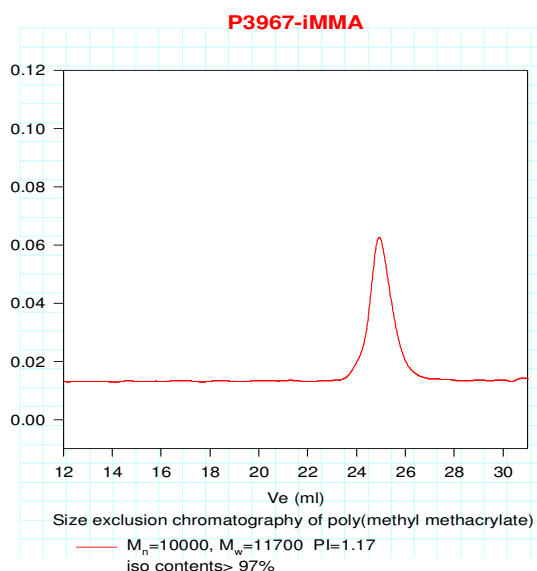
T_g vs MW for selected isotactic PMMA

| M _n × 10 ³ | T _g (°C) | M _n × 10 ³ | T _g (°C) |
|----------------------------------|---------------------|----------------------------------|---------------------|
| 3.4 | 31 | 40 | 51 |
| 6.3 | 52 | 93 | 53 |
| 10 | 48 | 170 | 57 |
| 15 | 52 | 332 | 55 |
| 30 | 46 | 769 | 51 |

NMR of Isotactic PMMA (example)



SEC of the Homopolymer:



T_g of isotactic MMA as function of molecular weight

