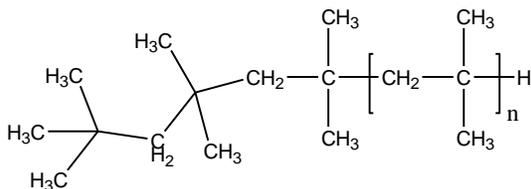


**Sample Name: Polyisobutylene**  
**Sample #: P8897-IB**

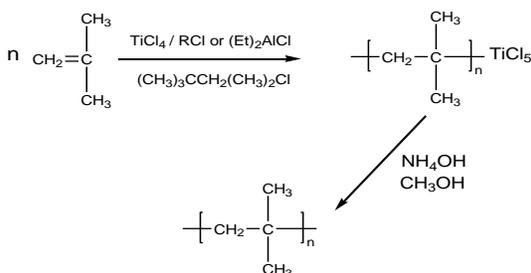


**Composition:**

$M_n \times 10^3$	PDI
30.5	1.14
$T_g$ (°C)	-66

**Synthesis Procedure:**

Polyisobutylene is synthesized by living cationic polymerization of isobutylene in hexane at  $-78^\circ\text{C}$  using a tin based catalyst and a 2,4,4-dimethyl pentene / HCl initiator. The reaction scheme is shown below:



**Purification:**

After polymerization the catalyst residues are removed by filtration and washing with acidic water after which the pH is returned to nominal values and finally the polymer is freeze dried.

**Characterization:**

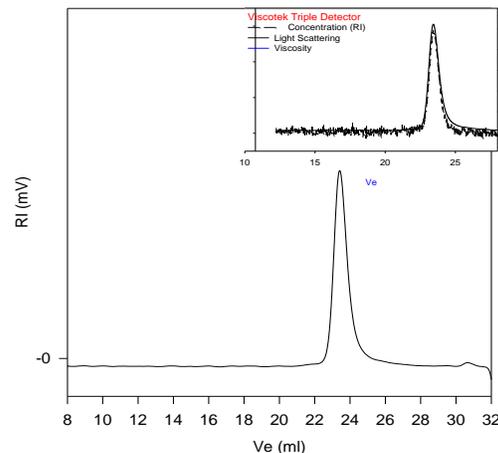
The molecular weight and polydispersity index (PDI) of polyisobutylene are obtained by size exclusion chromatography.

Thermal analysis of the samples was carried out using a differential scanning calorimeter (TA Q100) at a heating rate of  $10^\circ\text{C}/\text{min}$ . The inflection glass transition temperature ( $T_g$ ) has been considered.

**Solubility:**

Polyisobutylene is soluble in THF, toluene, hexane, pentane and cyclohexane and precipitates from methanol and ethanol.

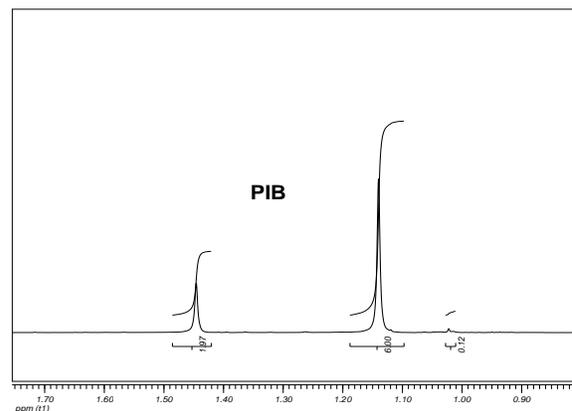
**SEC of Homopolymer: P8897-IB**



Size Exclusion Chromatography of polymer:

$M_n = 30500$ ,  $M_w = 34800$ ,  $M_w/M_n = 1.14$   
 Solution Viscosity in THF at  $35^\circ\text{C}$ : 0.243dl/g  
 Rgw: 6.61nm  
 $dn/dc$  in THF at  $35^\circ\text{C}$ : 0.112 ml/g

**H NMR of the polymer:**



**DSC thermogram for the polymer:**

