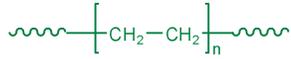


Sample Name: Polyethylene  
**(obtained from the hydrogenation of Poly butadiene rich in 1,4 microstructure)**

Sample #: P2250-E

**Structure:**

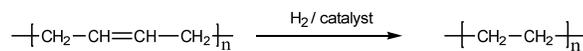
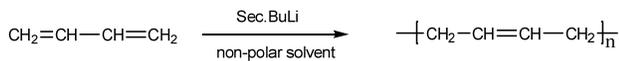


**Composition:**

$M_n \times 10^3$		PDI
103.2		1.08
$T_m$ (°C): 98	$T_c$ (°C): 77	$T_g$ (°C): -

**Synthesis Procedure:**

Polyethylene is made from the hydrogenation of 1,4-polybutadiene. 1,4-polybutadiene is synthesized by living anionic polymerization of butadiene in non-polar solvent.



**Characterization:**

The molecular weight and polydispersity index (PDI) are obtained by size exclusion chromatography. The hydrogenation of polybutadiene is confirmed by FT-IR with disappearance of the alkene double bond.

Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 10°C/min.

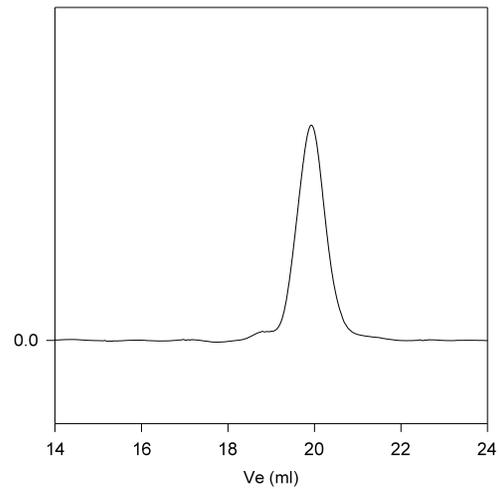
The melting temperature ( $T_m$ ) was taken as the maximum of the endothermic peak whereas the crystallization temperature ( $T_c$ ) was considered as the minimum of the exothermic peak.

**Solubility:**

Polyethylene is soluble in hot toluene and hot xylene. The polymer is insoluble in hexane, methanol and ethers.

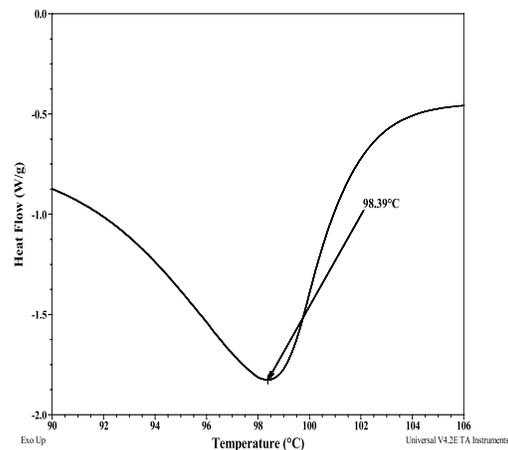
**SEC of the Polymer: Precursor**

**Poly butadiene Precursor for P2250-E**



Size exclusion chromatography of polybutadiene with respect to polybutadiene standards (precursor for P1990-E):  
 $M_n=99500$ ,  $M_w=107500$ ,  $M_w/M_n=1.08$   
 Molecular weight of Polyethylene  $M_n$  103200  $M_w/M_n$ : 1.08

**Melting curve for the sample:**



**Crystallization curve for the sample:**

