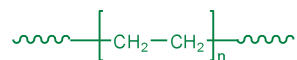


Sample Name: Polyethylene
(obtained from the hydrogenation of Polybutadiene rich in 1,4 microstructure)

Sample #: P2250-E

Structure:

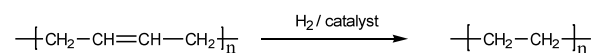
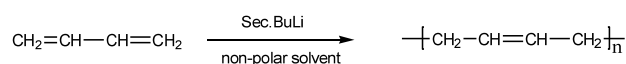


Composition:

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

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.

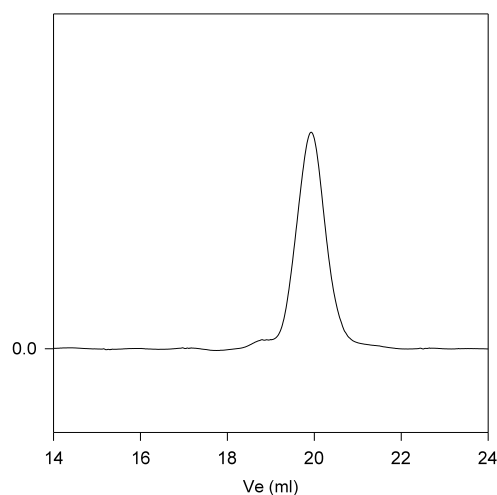
The melting temperature (T_m) was taken as the maximum of the endothermic peak where as the crystallization temperature (T_c) was considered as the minimum of the exothermic peak.

Solubility:

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

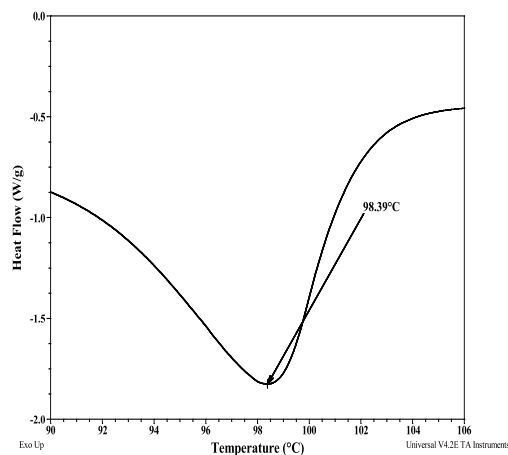
SEC of the Polymer: Precursor

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:

