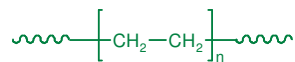


Sample Name: Polyethylene
(obtained from the hydrogenation of Polybutadiene rich in 1,4 microstructure)

Sample #: P2074-E

Structure:

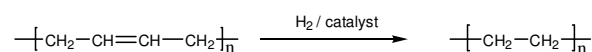
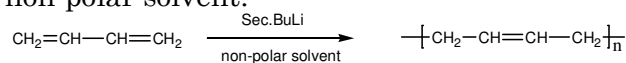


Composition:

$M_n \times 10^3$		PDI
4.6		1.05
T_m (°C): 101	T_c (°C): 93	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 P2072-PE

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

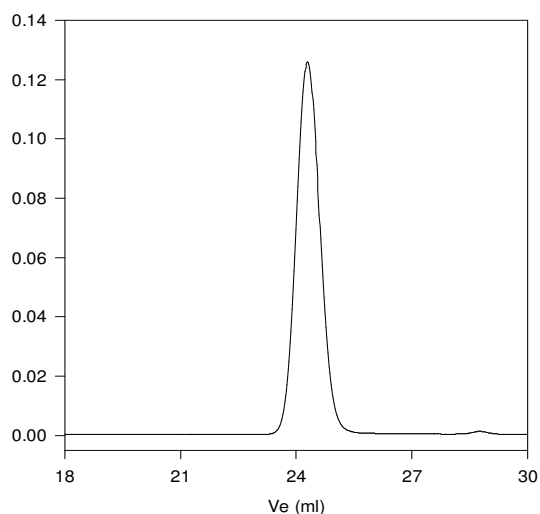
The melting temperature (T_m) was taken as the maximum of the endothermic peak where as the crystallization temperature (T_c) was considered as the minimum of the exothermic peak.

Solubility:

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

SEC of the Polymer: Precursor

P2074-Bd(precursor for P2074-E)

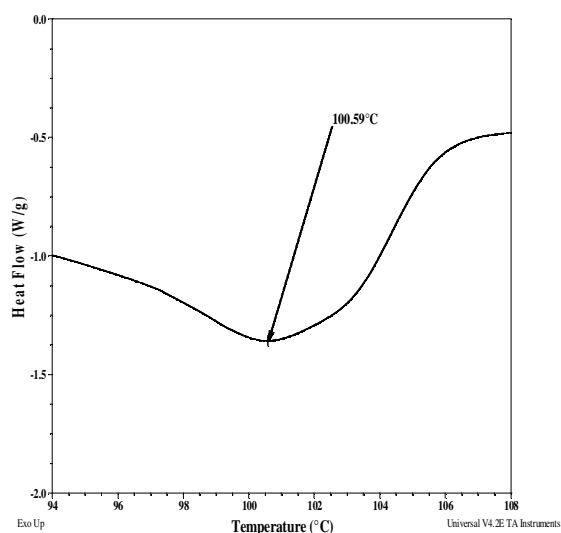


Size exclusion chromatography of polybutadiene with respect to polybutadiene standards (precursor for P2074-E):

$M_n=4480$, $M_w=4700$, $M_p=4690$ $M_w/M_n=1.05$

Molecular weight of Polyethylene $M_n:4650$, $M_w/M_n:1.05$

Melting curve for the sample:



Crystallization curve for the sample:

