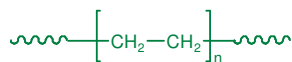


Sample Name: Polyethylene  
**(obtained from the hydrogenation of Polybutadiene rich in 1,4 microstructure)**  
Sample #: P1979-E  
Structure:

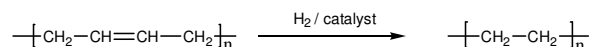
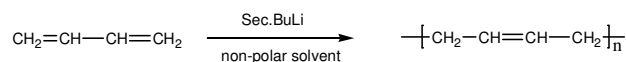


#### Composition:

Mn x 10 <sup>3</sup>	PDI
12.5	1.05
T <sub>m</sub> (°C): 106	T <sub>c</sub> (°C): 97

#### 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 (SEC) in THF. The SEC instrument calibrated with poly butadiene standards. 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 Viscotek Co.

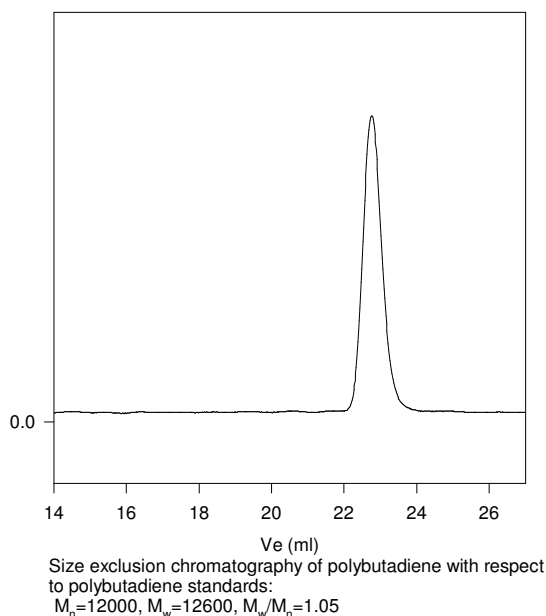
The hydrogenation of polybutadiene is confirmed by FT-IR with disappearance of the alkene double bond.

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<sub>m</sub>) was taken as the maximum of the endothermic peak where as the crystallization temperature (T<sub>c</sub>) was considered as the minimum of the exothermic peak.

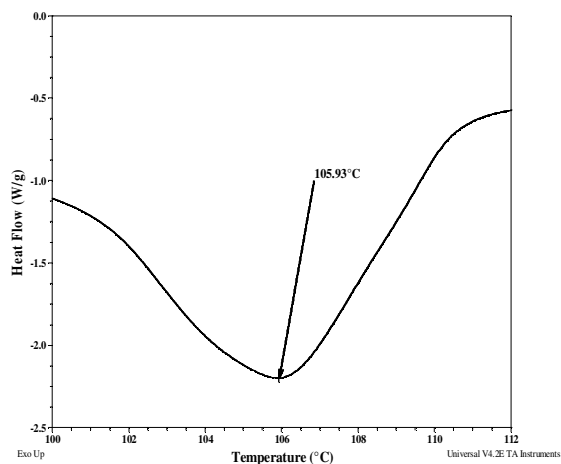
#### Solubility:

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

#### SEC of the Polymer: Precursor PBd precursor for the Sample P1979-E



#### Melting curve for the PE:



#### Crystallization curve for the polymer:

