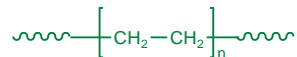


Sample Name: Polyethylene  
(obtained from the hydrogenation of Poly butadiene rich in 1,4 microstructure)

Sample #: P19420-E

**Structure:**

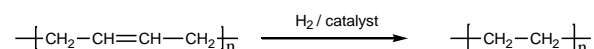
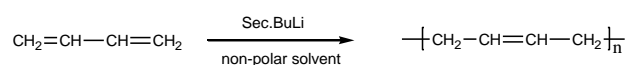


**Composition:**

Mn x 10 <sup>3</sup>	PDI
1,100.0	1.10

**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.

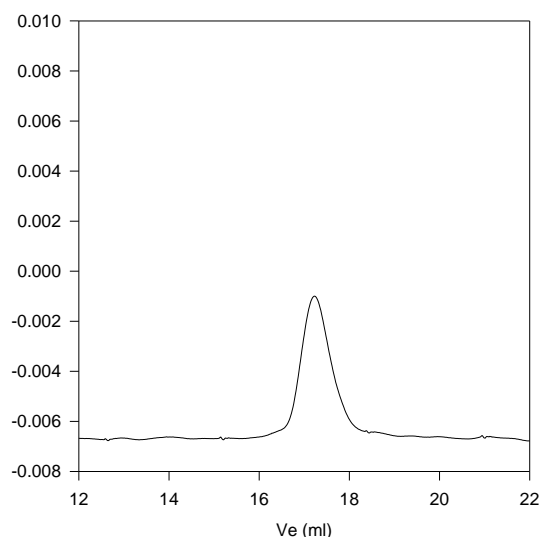
The hydrogenation of polybutadiene is confirmed by FT-IR with disappearance of the alkene double bond.

**Solubility:**

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

**SEC of the Polymer: Precursor**

**P19420-Bd Precursor for P19420-E**



Size exclusion chromatography of polybutadiene:

$M_n=1100000$ ,  $M_w=1210000$ ,  $M_z=1315000$  PI=1.10