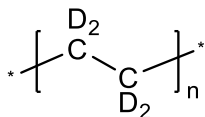


Sample Name: Deuterated Polyethylene-d₄

Sample #: P41765-dPE

Structure:



Composition:

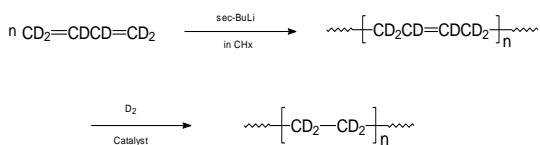
$M_n \times 10^3$ (g/mol)	M_w/M_n
152.0	1.35

Thermal properties:

Melting point, T_m	Crystallization point, T_{cr}
92 °C	81 °C

Synthesis procedure:

The polyethylene-d₄ was obtained by deuteration of poly(1,4-butadiene-d₆), which was synthesized by living anionic polymerization of butadiene-d₆ in non-polar solvent. The scheme of reaction is presented below:



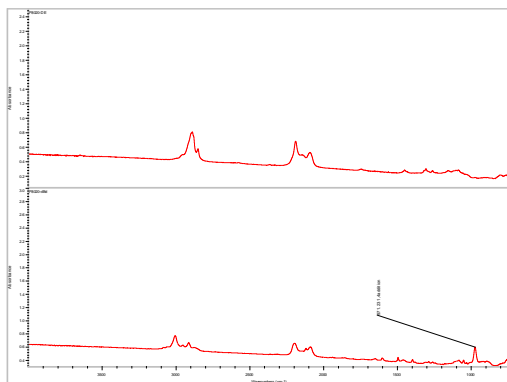
Characterization:

The product was characterized by size exclusion chromatography (SEC), FTIR and DSC.

Solubility:

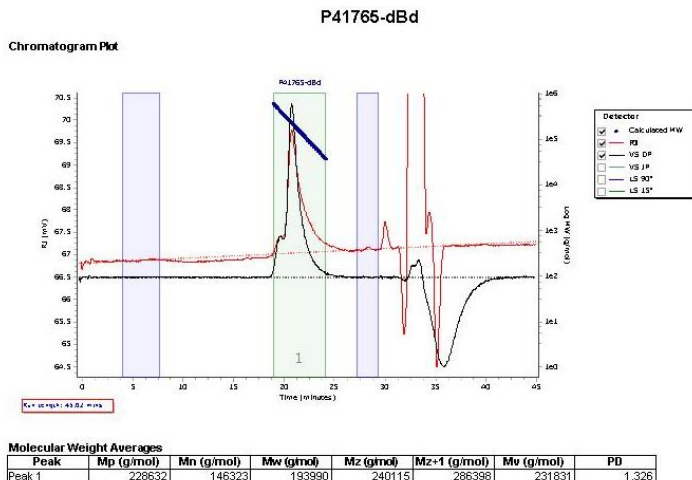
Polyethylene-d₄ is soluble in hot toluene and xylene. The obtained solution has light ivory color; this coloration is due to the presence of trace amount (we expect <5–6 ppm) of the Wilkinson catalyst used in synthesis (and which is hard to remove from the final product).

FT-IR spectra of dPE (top) and dPBd (bottom):



SEC chromatogram of dPBd precursor:

Agilent GPC/SEC Software



DSC thermograms of the dPE product:

1st cooling (upper) and 2nd heating (lower) scans, both performed at a rate 10 °C/min.:

