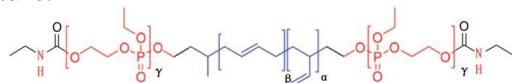


**Sample Name:** Poly(Phosphoester-b-butadiene-b-Phosphoester) terminated with Urethane; Linker Propyl

**Sample #:** P43329A-Pho-Bd-Pho

**Structure:**



**Composition:**

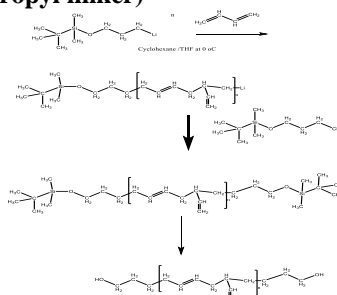
Mn $\times 10^3$ Pho-Bd-Pho	Mw/Mn (PDI)
0.95-b-2.5-b-0.95	1.05

dP: 6-b-46-b-6

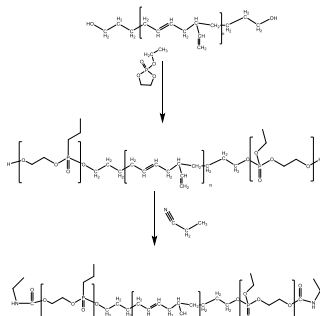
**Synthesis Procedure:**

The following reaction scheme shows how the product was prepared:

**1. Preparation of Poly Butadiene with OH end group (propyl linker)**



**2:**



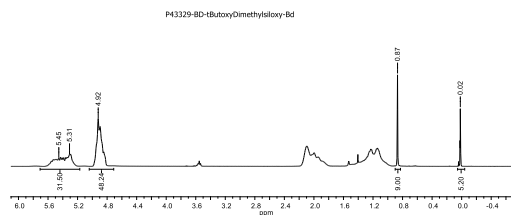
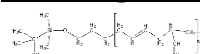
**Characterization:**

The product was characterized by size exclusion chromatography (SEC) and  $^1\text{H}$  NMR data analysis.

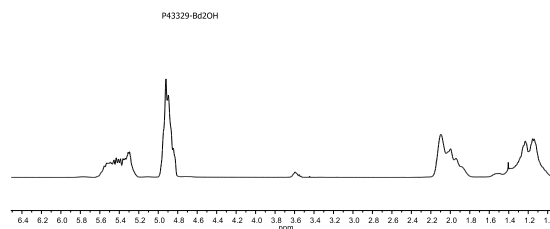
**Purification:**

2-ethoxy-1,3,2-dioxaphospholane 2-oxide is very sensitive to polymerize by moisture or by heat treatment. After the reaction with Bd2OH in presence of Sn Octoate catalyst the obtained polymer was dissolved in dry diethyl ether and the insoluble fraction was removed (the insoluble fraction is **Phosphoester** that separate out) and the polymer was ppt in cold acetone.

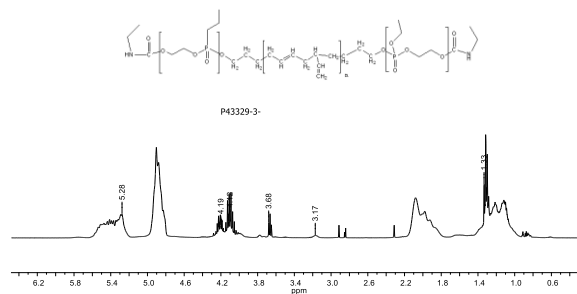
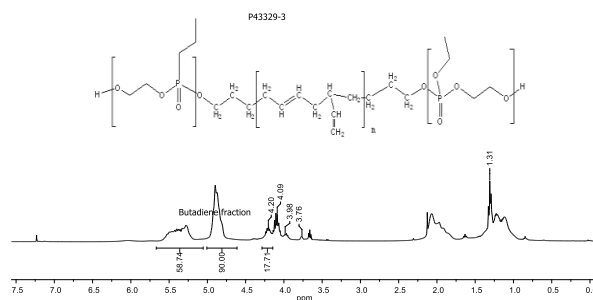
**$^1\text{H}$  NMR spectrum of the BD2OH sample:**



**$^1\text{H}$  NMR spectrum of the PBd2OH Propyl Linker sample:**



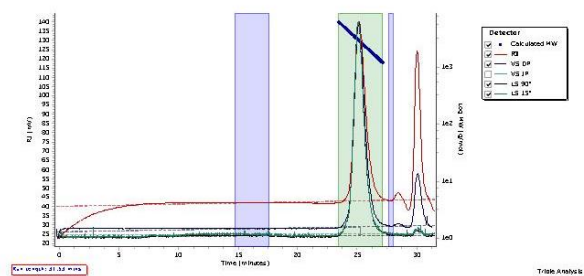
**$^1\text{H}$  NMR spectrum of the Poly (Phosphoester-b-butadiene-b-Phosphoester):**



**SEC profile of the Bd2OH Sample:**

**P43329-Bd2OH**

### Chromatogram Plot



Peak	Mp (g/mol)	Mn (g/mol)	Mw (g/mol)	Mz (g/mol)	Mz+1 (g/mol)	Me (g/mol)	PD
Peak 1	2947	2679	2611	2934	3050	2905	1.049