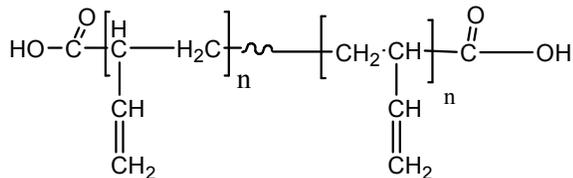


Sample Name: DiCarboxy Terminated Polybutadiene, 1, 2-rich microstructure
Sample #: P3897-Bd2COOH

Structure:



Composition:

$M_n \times 10^3$	PDI
1.6	1.18
COOH functionality	>1.8
T_g (°C)	-53
COOH : 1.12 mEq/g of polymer	

Synthesis Procedure:

1,2-addition carboxy terminated polybutadiene was prepared by anionic living polymerization of butadiene in polar media, followed by terminating the polymerization with dried CO₂.

Characterization:

The molecular weight and polydispersity index (PDI) are obtained by size exclusion chromatography (SEC) in THF. 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.

Functionality: The degree of polymer functionality was determined by acid-base titration.

Thermal Analysis:

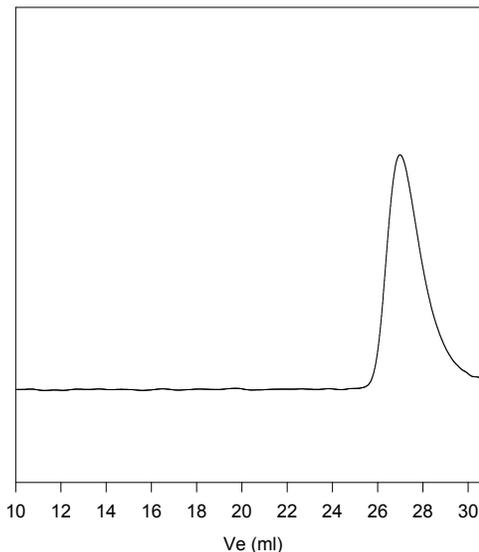
Thermal analysis of the samples was carried out using a differential scanning calorimeter (TA Q100) at a heating rate of 10°C/min. The inflection glass transition temperature (T_g) of the sample has been considered.

Solubility:

COOH terminated polybutadiene is soluble in THF, toluene, hexane, cyclohexane and CHCl₃. It precipitates from methanol, ethanol and water.

SEC of Sample:

P3897-Bd2COOH (Rich in 1,2 addition)



Size exclusion chromatography of dicarboxy terminated polybutadiene before termination with CO₂:

$M_n=1600$ $M_w=1900$, $PI=1.18$ functionality=>1.8
 (COOH: 1.12 mEq/g of the polymer)
 (Acid base titration)

DSC thermogram for the sample:

