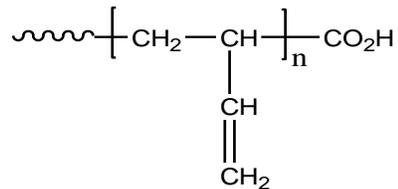


Sample Name: Carboxy Terminated Polybutadiene, 1, 2-rich microstructure
Sample #: P3891-BdCOOH

Structure:



Composition:

$M_n \times 10^3$	PDI
1.1	1.16
COOH functionality	>80%
T_g (°C)	-50

Synthesis Procedure:

1,2-addition carboxy terminated polybutadiene was prepared by anionic living polymerization of butadiene in non-polar media, followed by end capping with a unit of diphenyl ethylene than the addition of THF followed by terminating the polymerization with dried CO_2 .

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:

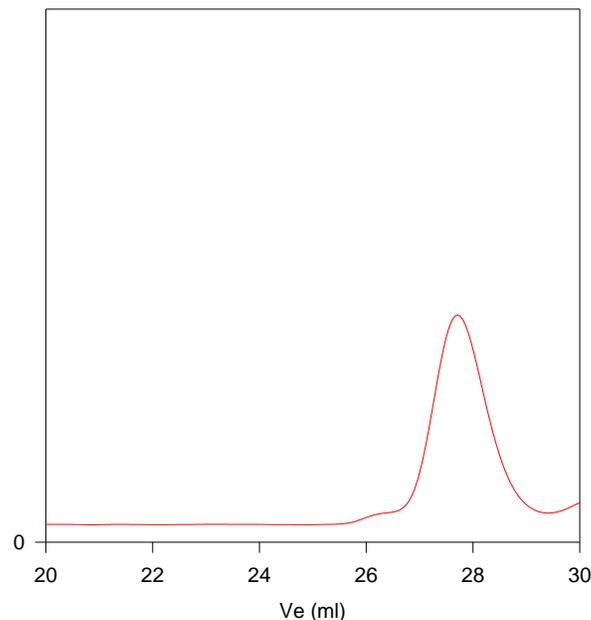
Thermal analysis of the samples was carried out using a differential scanning calorimeter (TA Q100) at a heating rate of $10^\circ\text{C}/\text{min}$. The inflection glass transition temperature (T_g) of the sample has been considered.

Solubility:

COOH terminated polybutadiene is soluble in DMF, THF, toluene, hexane, cyclohexane and CHCl_3 . It precipitates from methanol, ethanol and water.

SEC of Sample:

P3891-BdCOOH (Rich in 1,2 addition)



Size exclusion chromatography of polybutadiene before termination with CO_2 :

$M_n=1100$ $M_w=1250$, $PI=1.11$ functionality=>0.95%
 (Acid base titration)

DSC thermogram for the sample:

