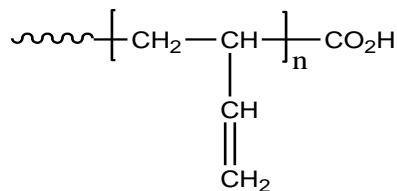


Sample Name: Carboxy Terminated
Polybutadiene, 1, 2-rich microstructure
Sample #: P8633-BdCOOH

Structure:



Composition:

$M_n \times 10^3$	PDI
3.0	1.15
COOH functionality	>80%
T_g (°C)	-32

Synthesis Procedure:

1,2-addition carboxy terminated polybutadiene was prepared by anionic living polymerization of butadiene in a polar media, followed by end capping with a unit of diphenyl ethylene before deactivation the reaction 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:

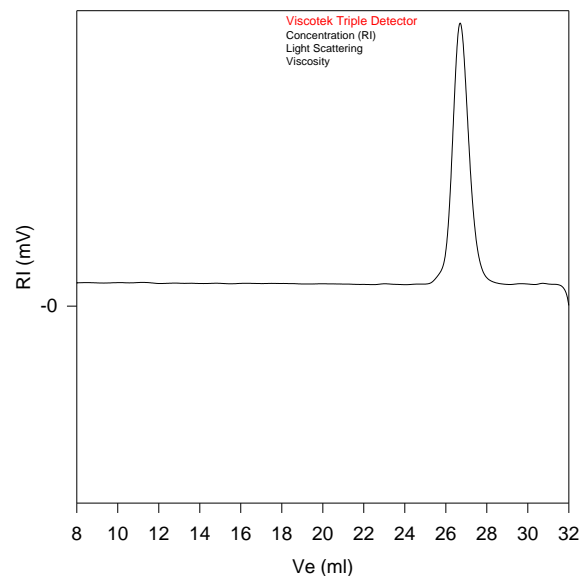
Thermal analysis of the samples was carried out using a differential scanning calorimeter (TA Q100) at a heating rate of 10°C/min. The inflection glass transition temperature (T_g) of the sample has been considered.

Solubility:

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

SEC of Sample:

P8633-BdCOOH



Size Exclusion Chromatography of polybutadiene end functionalized with COOH:

— $M_n = 3000$, $M_w = 3400$, $M_w/M_n = 1.15$
Functionality > 80%

DSC thermogram for the sample:

