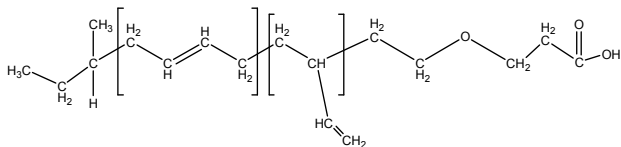


Sample Name: **Carboxy-terminated Polybutadiene (1, 4-rich microstructure)**
Sample #: **P19257-BdCOOH**

Structure:



Composition:

Mn x 10 ³	PDI
1.9 2.0 (HNMR)	1.04
COOH functionality:	> 98 %
PBd 1,4-addition:	92 %

Synthesis Procedure:

1, 4-addition carboxy-terminated polybutadiene was prepared by anionic living polymerization of butadiene in non-polar media, followed by termination of the polymerization with dried CO₂ in presence of THF to avoid any linking reaction with CO₂.

Characterization:

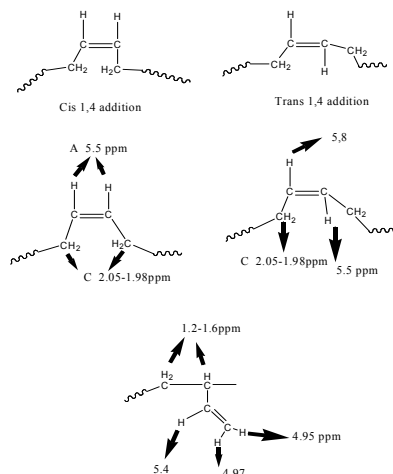
By GPC and HNMR. .

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

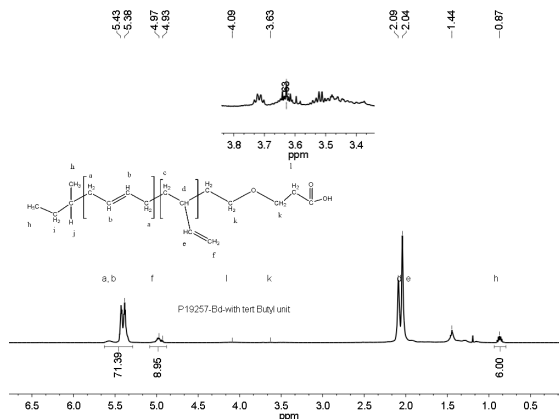
Microstructure: The ratio between 1,4- and 1,2-addition was calculated by ¹H NMR spectroscopy.

Solubility:

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

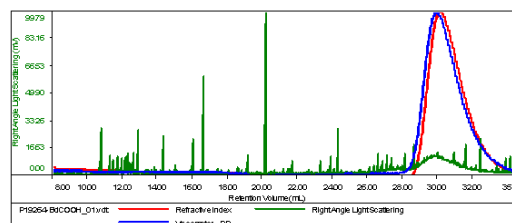


¹H NMR spectrum:



SEC elugram:

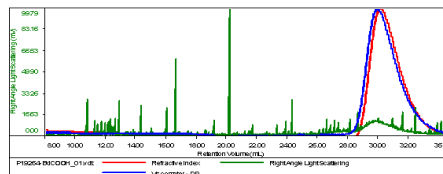
Concentration (mg/mL)	6.6739
Sample divd: (mL/g)	0.1670
MethodFile	PS806-April29-2015-0000.vcm
Column Set	3x PL 1113-6300
Solvent	THF



Sample	MW Number Average (Da)	MW Weight Average (Da)	MW at Peak (Da)	Polydispersity	Intrinsic Viscosity (dL/g)
BdCOOH_01.vit	1,974	2,020	1,985	1.023	0.4361

After converting tert butyl ester to COOH
SEC elutogram shows broadening ; It might be due to the adsorption of free COOH to the column packing material.

Concentration (mg/mL)	6.6739
Sample divd: (mL/g)	0.1670
MethodFile	PS806-April29-2015-0000.vcm
Column Set	3x PL 1113-6300
Solvent	THF



Sample	MW Number Average (Da)	MW Weight Average (Da)	MW at Peak (Da)	Polydispersity	Intrinsic Viscosity (dL/g)
BdCOOH_01.vit	1,974	2,020	1,985	1.023	0.4361