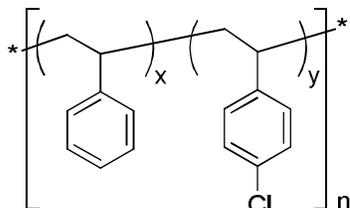


Sample Name: Poly(styrene-co-4-chlorostyrene)
random copolymer

Sample # P19641G-S4ClSran

Structure:



Composition:

$M_n \times 10^3$ (g/mol)	M_w/M_n
21.0	1.08
Content of poly(4-chlorostyrene):	19 mol%
T_g of PS-co-P4ClS:	107 °C

Synthesis procedure:

The copolymer was prepared by radical polymerization of styrene and 4-chlorostyrene in presence of TEMPO.

Characterization:

Molecular weight and polydispersity index (M_w/M_n) of the copolymer were obtained by size exclusion chromatography (SEC). Analysis of the copolymer by ^1H NMR spectroscopy did not reveal any presence of monomer impurities. Content of poly(4-chlorostyrene) in PS-co-P4ClS copolymer was determined by elemental analysis.

Thermal analysis:

Thermal analysis of the copolymer was performed on a TA Q100 differential scanning calorimeter (DSC) at a heating rate of 10°C/min. The midpoint of the slope change of the heat flow plot of the second heating scan was considered as the glass transition temperature (T_g).

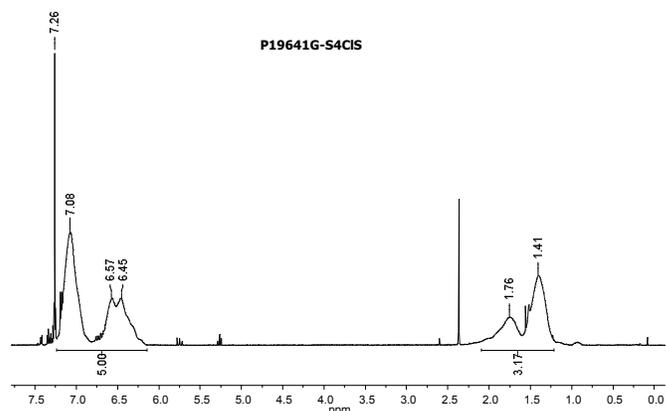
Solubility:

PS-co-P4ClS is soluble in CHCl_3 , THF, DMF, toluene. The copolymer precipitates from hexane.

Elemental analysis of PS-co-P4ClS:

Sample: P19641G		Received: 2016-01-19		
Lab ID: 2016-A-9372				
Analysis	Method	Result	Basis	Sample Amount Used
C: Carbon	GLI Procedure ME-14	82.56 %	As Received	1.410 mg
Cl: Chlorine	GLI Procedure ME-4A	6.04 %	As Received	94.82 mg
H: Hydrogen	GLI Procedure ME-14	6.67 %	As Received	1.410 mg

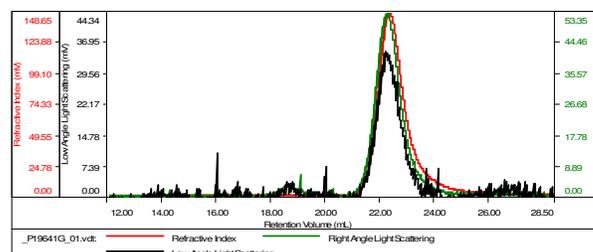
^1H -NMR (500 MHz, CDCl_3) spectrum:



SEC elugram of the random copolymer:

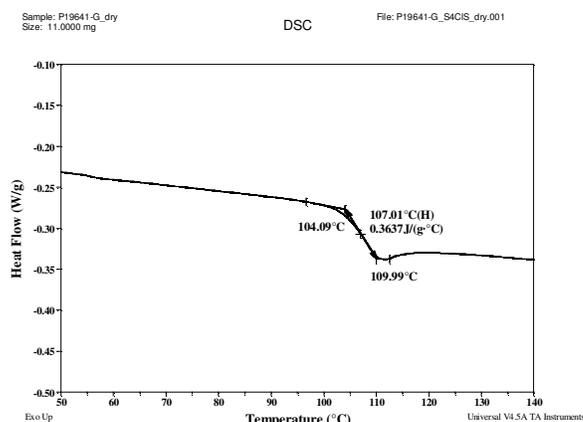
Sample ID-P19641GS4ClSran

Concentration (mg/mL)	0.9306
Sample dn/dc (mL/g)	0.1850
Method File	PS80K-June30-2015-0000.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)
_P19641G_01.vdt	20,886	22,550	23,570	1.080	1.0036

DSC thermogram of PS-co-P4ClS:



Reference: Thermal transition of T_g for S4ClSran copolymer ($M_n=19.5-22.5$ kDa).

4ClS:	7 mol%	8 mol%	19 mol%	35 mol%	36 mol%	54 mol%
T_g :	103°C	105°C	107°C	112°C	114°C	123°C