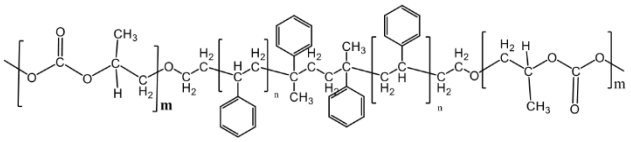
Sample Name:
Poly(propylene carbonate)-b-poly(styrene)-b-poly(propylene carbonate)

Sample#: **P43063-PPCSPPC**

Structure:



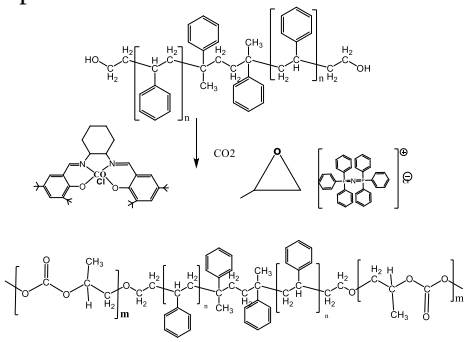
Composition:

Mn x 10^3 PPC-S-PPC	PDI
8.5-10.0-8.5	1.25

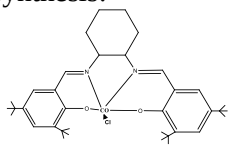
Thermal properties:

Tg for PPC block	Tg for PS block
35 ^oC	84 ^oC

Synthesis Procedure:
The following reaction scheme shows how the product was prepared:



Purification:
The polymer was purified to remove homopolycarbonate fraction generated by Ionic polymerization of Propylene oxide by the following catalyst :(R,R)-N,N'-Bis(3,5-di-tert-butylsalicylidene)-1,2-cyclohexanediaminocobalt(II) chloride used in the synthesis:



Product was purified to remove:

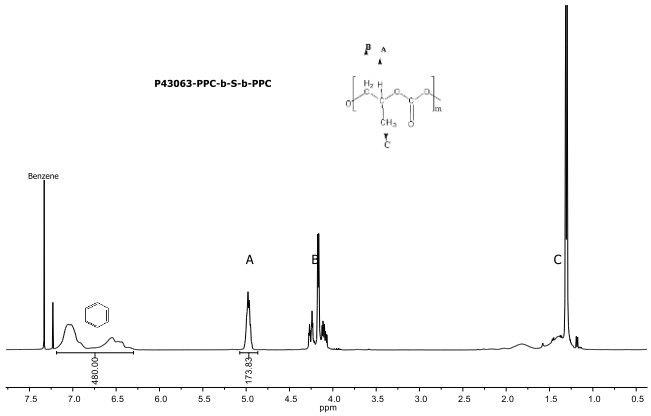
1. Hompolystyrene if any
2. Homopoly propylene carbonate
   Using solvent /non solvent mixture and the purification followed by SEC profile.

Characterization:
Polymer analyzed by size exclusion chromatography (SEC), ^{1}H-NMR data analysis and DSC thermogram.

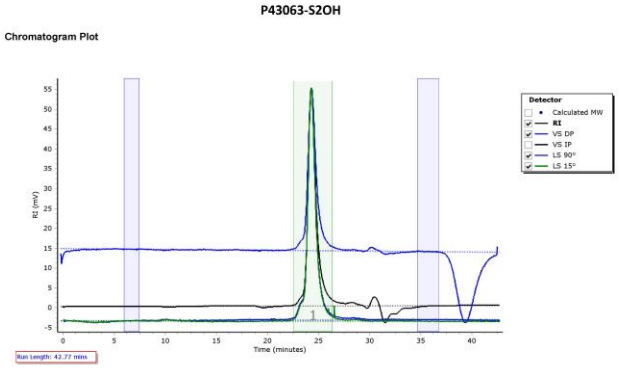
Thermal analysis
Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter under a nitrogen atmosphere at a heating rate of 10 ^oC/min.

Solubility:
The polymer is soluble in THF, toluene, and $CHCl_3$.

^{1}H-NMR Spectrum of the product:



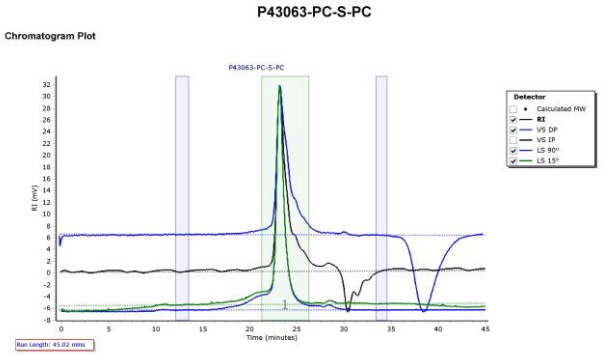
SEC elugram of the PS2OH sample used:



Molecular Weight Averages

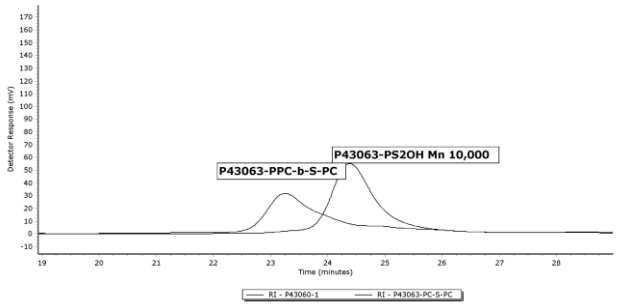
Peak	Mp (g/mol)	Mn (g/mol)	Mw (g/mol)	Mz (g/mol)	Mz+1 (g/mol)	Mv (g/mol)	PD
Peak 1	10662	10122	10308	10484	10653	10437	1.018

SEC elugram of the sample:



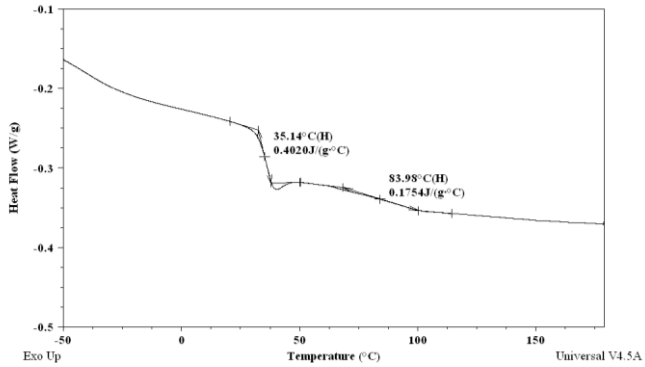
Molecular Weight Averages

Peak	Mp (g/mol)	Mn (g/mol)	Mw (g/mol)	Mz (g/mol)	Mz+1 (g/mol)	Mv (g/mol)	PD
Peak 1	39434	26531	33256	39138	45179	0	1.253



DSC thermogram of the polymer:

The glass transition temperature (Tg) for PPC and PS blocks were obtained from the second heating scan at a rate of 10 ºC/min.



* Lowering Tg of PS is related to certain miscibility between PPC and PS blocks.