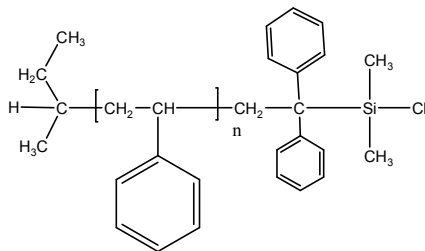


Sample Name:

Dimethyl Chlorosilane Terminated Polystyrene

Sample #: **P5812-SSiCl**

Structure:

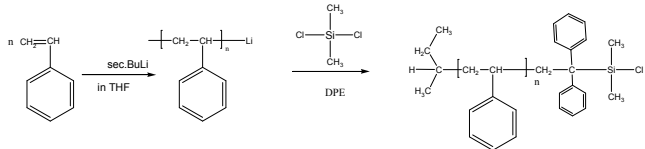


Composition:

Mn x 10 ³	PDI	Functionality SiCl
1.8	1.09	>98%

Synthesis Procedure:

Dimethyl Chlorosilane Terminated Polystyrene was prepared by anionic living polymerization of styrene in THF and termination with a large excess of dimethyl dichlorosilane. The process was carried out in a specially designed apparatus that allow to for high end functionalized polystyrene that bears terminal end of dimethyl chlorosily moiety. The scheme of the reaction is illustrated below:

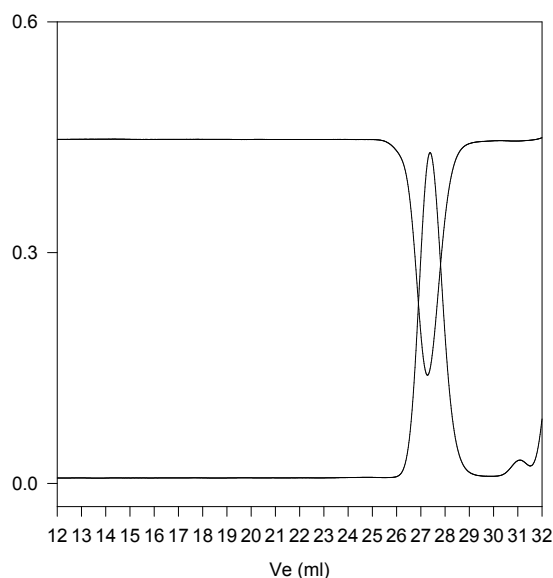


Characterization:

The molecular weight and polydispersity index of this polymer were determined before functionalization with chlorosilane by size exclusion chromatography (SEC) using a Varian liquid chromatograph equipped with a UV and refractive index detector. The functionalized polymer was first treated with n-BuLi to deactivate the end group and analysed by SEC to detect any dimer formation. The presence of dimer could not be detected in SEC analysis. Therefore, the end functionality was over 99%.

SEC of Sample:

P5812-SSiCl



Size exclusion chromatography of polystyrene terminated with dimethyl chlorosilane before and after termination with dimethyl dichlorosilane:
M_n=1600, M_w=1800 PI=1.09 (before termination with large excess of dimethyl dichlorosilane (DMDCS))
After Termination with DMDCS Mn 1800 Mw/Mn 1.09 'f' >98%

FTIR spectrum of the product:

FTIR spectrum of the polymer clearly shows the presence of SiCl at 1217 cm⁻¹ and SiCH₃ at 1254 cm⁻¹.

