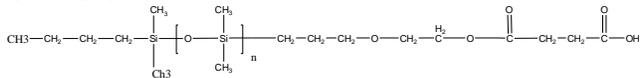


Sample Name:

Carboxy Terminated Polydimethylsiloxane

Sample #: P8645-DMSCOOH

Structure:

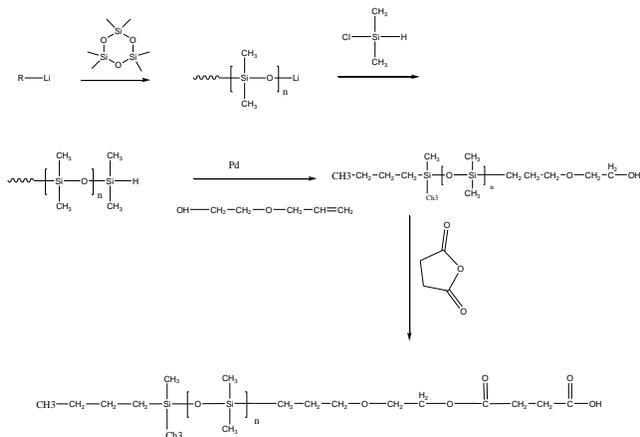


Composition:

Mn × 10 ³	PDI
10.0	1.09
T _m : -45°C	T _c : 15°C

Synthesis Procedure:

Carboxy terminated polydimethylsiloxane was prepared by living anionic polymerization of hexamethyl cyclotrisiloxane using a hydroxyl-protected initiator. The polymer was refluxed with an appropriate amount of succinic anhydride to introduce the carboxylic acid termination. The scheme of the reaction is illustrated below:



Characterization:

The molecular weight and polydispersity index of this polymer were determined by size exclusion chromatography (SEC) using a Varian liquid chromatograph equipped with a UV and refractive index detector.

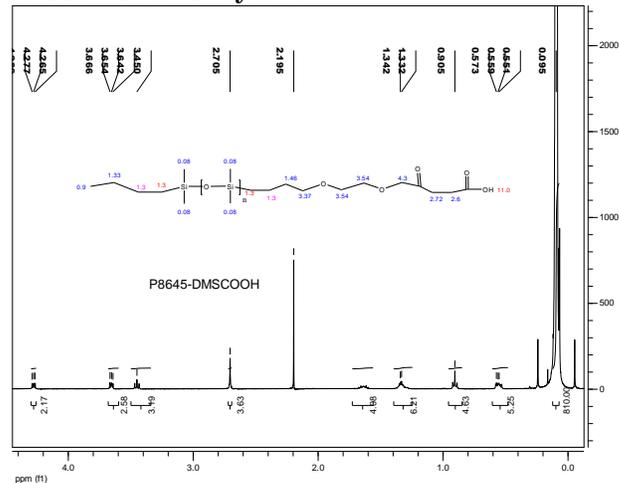
Thermal analysis

Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 10°C/min. The melting temperature (T_m) was taken as the maximum of the endothermic peak whereas the crystallization temperature (T_c) was considered as the minimum of the exothermic peak.

Solubility:

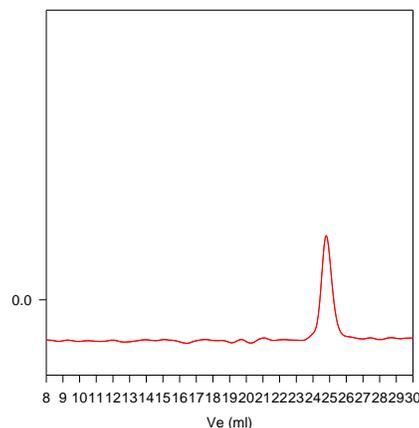
Polymer is soluble in hexane, THF and CHCl₃.

¹H NMR of the Polymer:



SEC of Sample:

P8645-DMSOH
(monocarbinol terminated used to obtain P8645-DMSCOOH)



Size exclusion chromatography of monocarbinol terminated poly(dimethyl siloxane):

M_n=10,000, M_w=10900 M_w/M_n=1.09, functionality=0.94%

Melting and crystallization curves for the polymer:

