

Supporting Information

Fluorinated Polyhedral Oligomeric Silsesquioxane-Based Shape Amphiphiles: Molecular Design, Topological Variation, and Facile Synthesis

Jinlin He,^{1,2,§} Kan Yue,^{1,§} Yuqing Liu,¹ Xinfei Yu,¹ Peihong Ni,² Kevin A. Cavicchi,¹

Roderic P. Quirk,¹ Er-Qiang Chen,^{3} Stephen Z. D. Cheng^{1*} and Wen-Bin Zhang,^{1*}*

¹College of Polymer Science and Polymer Engineering, The University of Akron,
Akron, Ohio 44325-3909, USA

²College of Chemistry, Chemical Engineering, and Materials Science, Jiangsu Key
Laboratory of Advanced Functional Polymer Design and Application, Soochow
University, Suzhou 215123, P. R. China

³Department of Polymer Science and Engineering and Key Laboratory of Polymer
Chemistry and Physics of Ministry of Education, College of Chemistry and Molecular
Engineering, Peking University, Beijing 100871, P. R. China

E-mail: wz8@uakron.edu (W.-B.Z.); scheng@uakron.edu (S.Z.D.C.);

eqchen@pku.edu.cn (E.Q.C.)

[§]These authors contributed equally to this work.

Contents

1. Fig. S1. ^{13}C NMR spectra of (a) VPOSS-PCL, and (b) FPOSS-PCL.
2. Fig. S2. FT-IR spectra of (a) VPOSS-PCL, and (b) FPOSS-PCL.
3. Fig. S3. ^{13}C NMR spectra of (a) PS-(SiH)-OH, (b) PS-(VPOSS)-OH, (c) PS-(VPOSS)-PCL, and (d) PS-(FPOSS)-PCL.
4. Fig. S4. FT-IR spectra of (a) PS-(SiH)-OH, (b) PS-(VPOSS)-OH, (c) PS-(VPOSS)-PCL, and (d) PS-(FPOSS)-PCL.
5. Table S1. Comparison of Molecular Weight Obtained from Two SEC instruments.

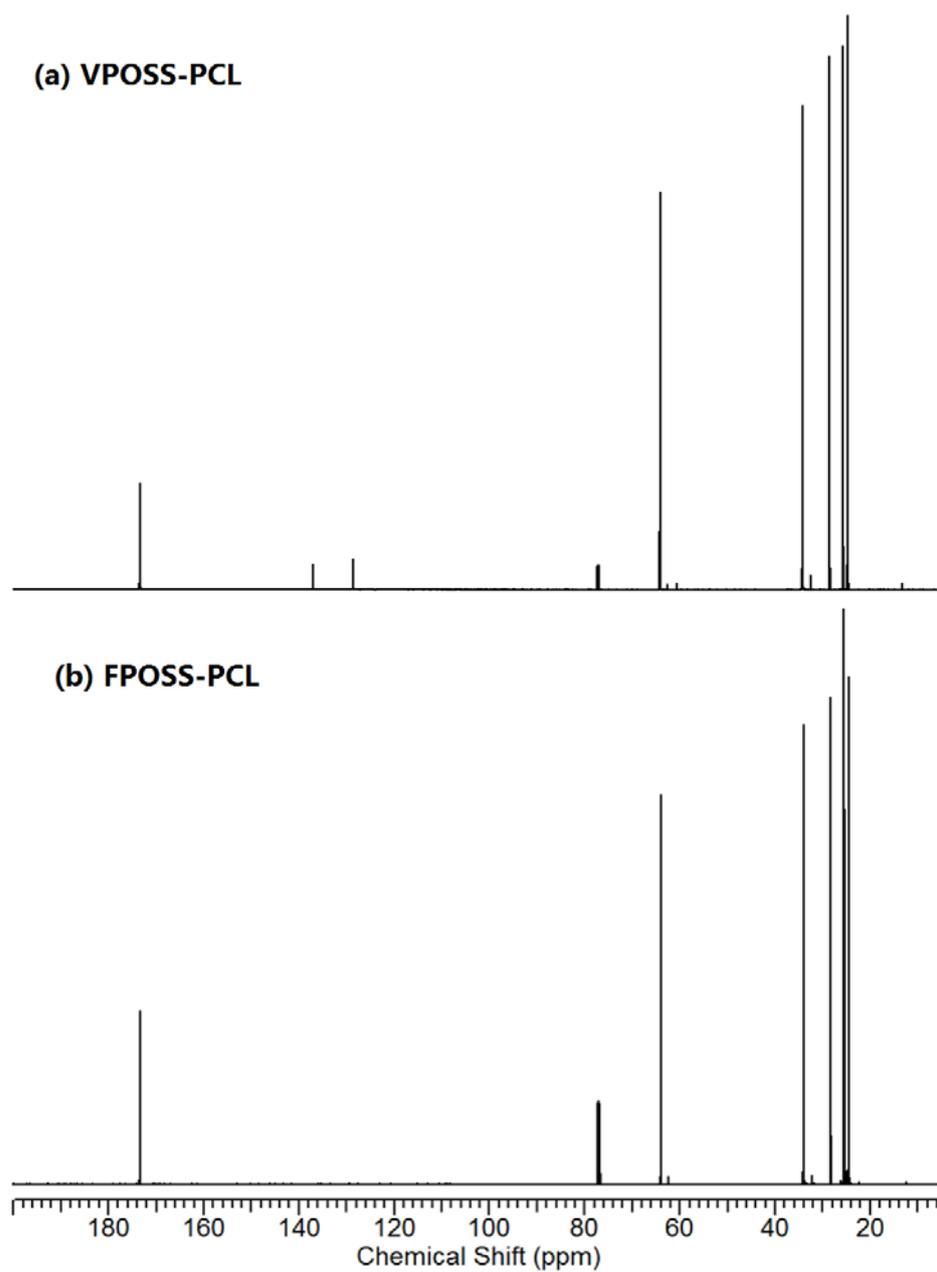


Fig. S1. ¹³C NMR spectra of (a) VPOSS-PCL, and (b) FPOSS-PCL.

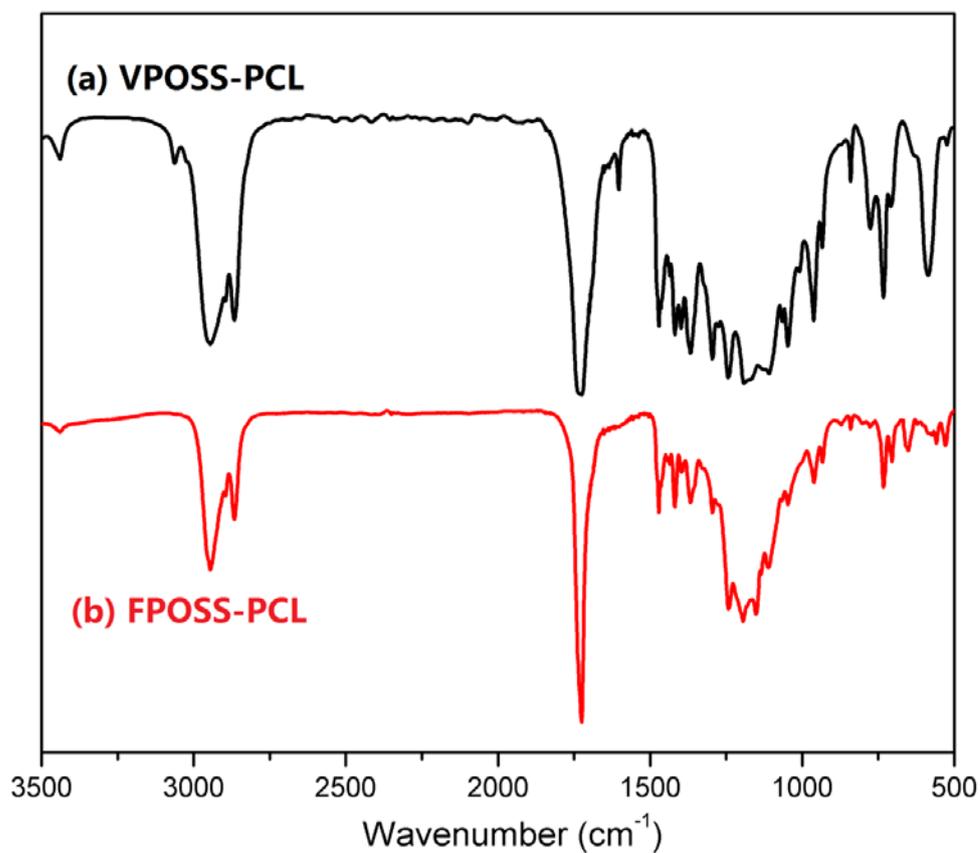


Fig. S2. FT-IR spectra of (a) VPOSS-PCL, and (b) FPOSS-PCL.

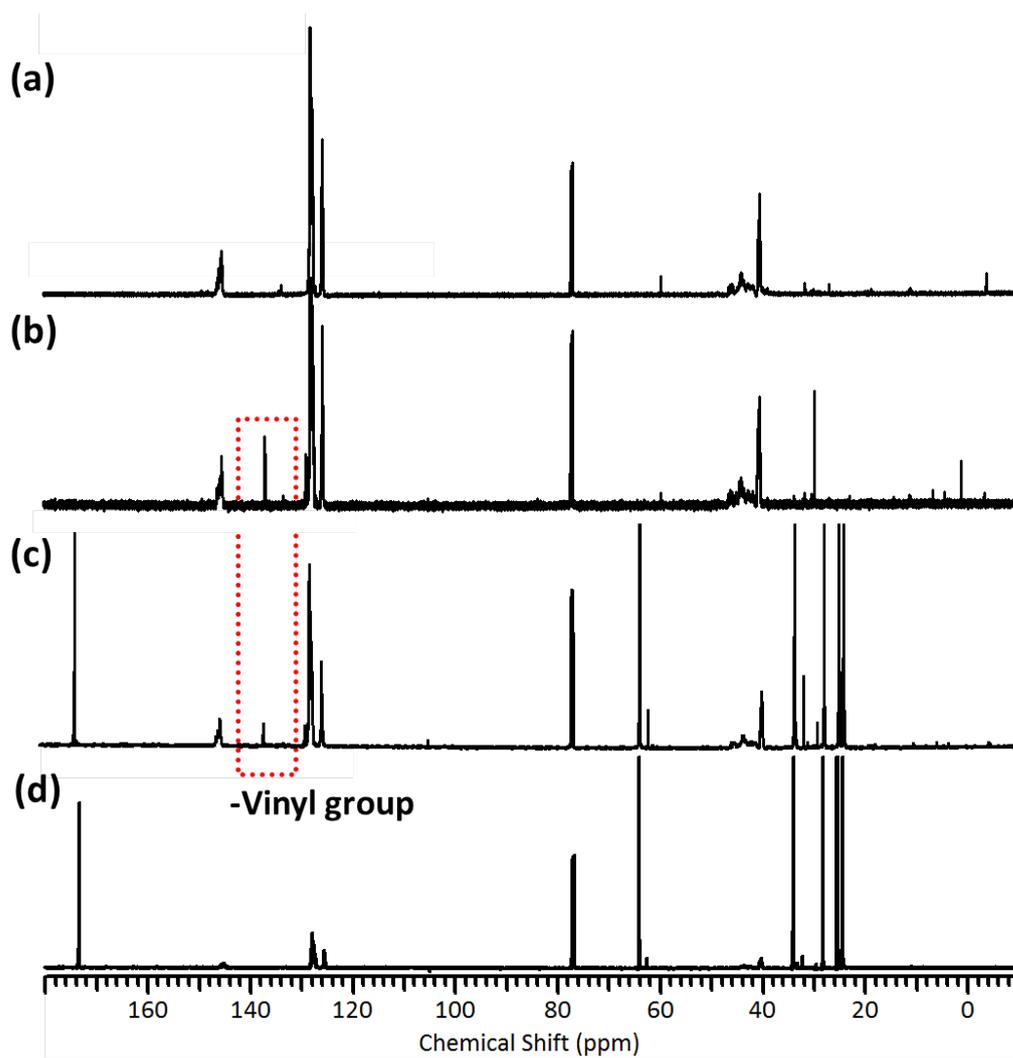


Fig. S3. ^{13}C NMR spectra of (a) PS-(SiH)-OH, (b) PS-(VPOSS)-OH, (c) PS-(VPOSS)-PCL, and (d) PS-(FPOSS)-PCL.

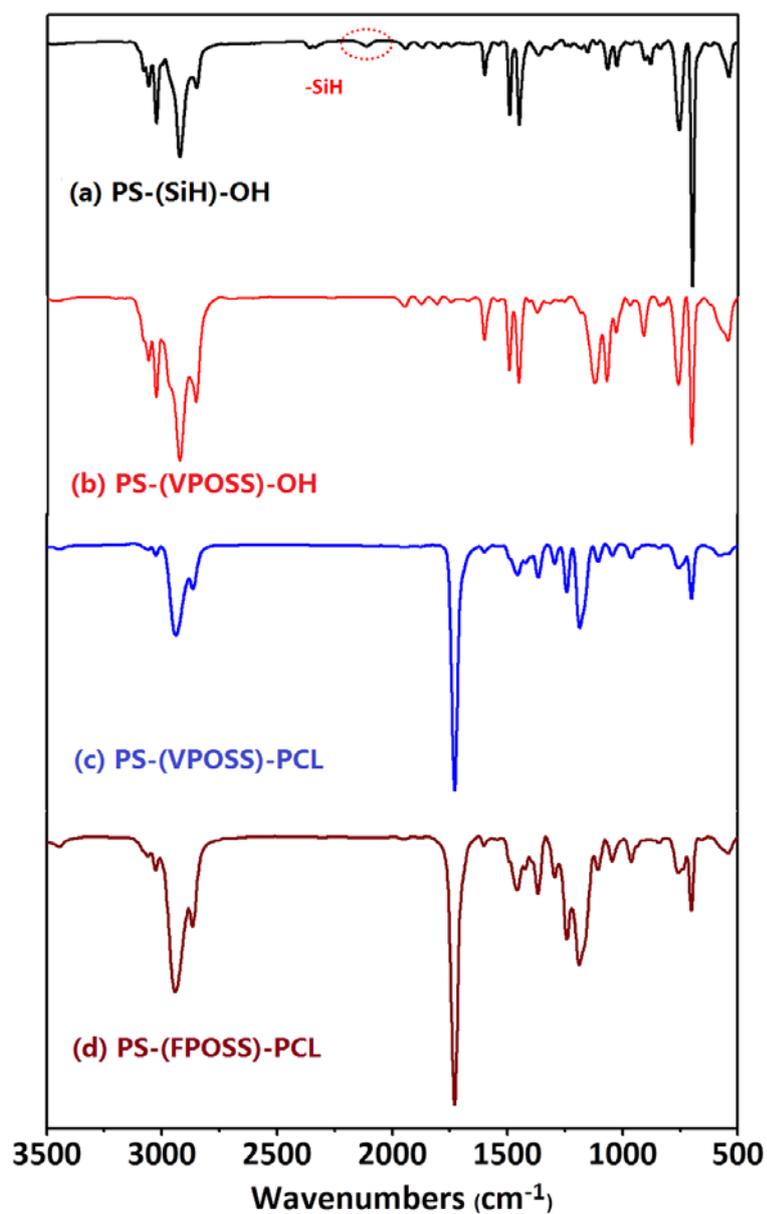


Fig. S4. FT-IR spectra of (a) PS-(SiH)-OH, (b) PS-(VPOSS)-OH, (c) PS-(VPOSS)-PCL, and (d) PS-(FPOSS)-PCL.

Table S1. Comparison of molecular weights obtained from two SEC instruments.

Sample	$M_{n,NMR}$				$M_{n,SEC}^a$	PDI ^a	$M_{n,SEC}^b$	PDI ^b
	XPOSS	PS	PCL	Total				
VPOSS-PCL	650	--	6.7k	7.4k	8.1k	1.12	5.1k	1.39
FPOSS-PCL	4009.8	--	6.7k	10.7k	9.6k	1.10	5.7k	1.40
PS-(SiH)-OH	--	6.9k	--	6.9k	6.0k	1.06	6.9k	1.02
PS-(VPOSS)-OH	650	6.9k	--	7.6k	6.5k	1.05	7.7k	1.01
PS-(VPOSS)-PCL	650	6.9k	13.7k	20.6k	15.0k	1.11	12.9k	1.04
PS-(FPOSS)-PCL	4009.8	6.9k	13.7k	24.0k	14.8k	1.27	14.4k	1.16

^a These data were obtained from the Waters Breeze system. ^b These data were obtained from the Waters 150-C Plus instrument.