

9 Fig. S1 ¹H NMR of PSEG. The chemical shift of H atom in $\delta = 0.14$ ppm is belong to the 10 methyl (CH₃) group, and $\delta = 3.76$ ppm is belong to the methane (CH₂) group.

4.5 3.5 f1 (ppm) 2.5

1.5

0.5

-0.5

CDCI

7.5

6.5

5.5

8.5

11



3 Fig. S2 ¹H NMR of PSPG. The chemical shift of H atom in $\delta = 0.12$ ppm is belong to the 4 methyl (CH₃) group linked to Si atom, 1.15 and 1.17 ppm are belong to the methyl (CH₃) 5 group linked to C atom, and $\delta = 3.47 \sim 3.96$ ppm are belong to the methane and methyne 6 group.

2



3 Fig. S3 ¹H NMR of PSDPG. The chemical shift of H atom in $\delta = 0.12$ ppm is belong to the 4 methyl (CH₃) group linked to Si atom, $\delta = 1.10$ and 1.16 ppm are belong to the methyl 5 (CH₃) group linked to C atom, and $\delta = 3.29$ ~4.04 ppm are belong to the methylene and 6 methyne group.

2





3 Fig. S5 ¹H NMR of PDSDEG. The chemical shift of H atom in $\delta = 0.06$ ppm is belong to 4 the methyl (CH₃) group linked to Si atom, $\delta = 0.98$ ppm is belong to the methylene (CH₂) 5 group linked to Si atom, and $\delta = 3.52 \sim 3.63$ ppm are belong to the methylene linked to 6 oxygen atom.

- 1 Reference
- 2 1 M. Padmanaban, M. A. Kakimoto and Y. IMAI, Journal of Polymer Science: Part A
- 3 *Polymer Chemistry*, 1990, **28**, 2997-3005.