

Supporting Information

Organic-Inorganic Hybrid Bent-Core Liquid Crystals with Cubic Silsesquioxane Cores

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GPC Traces of POSS-8BC and POSS-8SiBC. The structures and purities of POSS-8BC and POSS-8SiBC are further characterized by gel permeation chromatography as shown in Fig. S1. GPC traces of the samples are symmetrically narrow, and they have larger elution volumes than $Q_8M_8^H$.

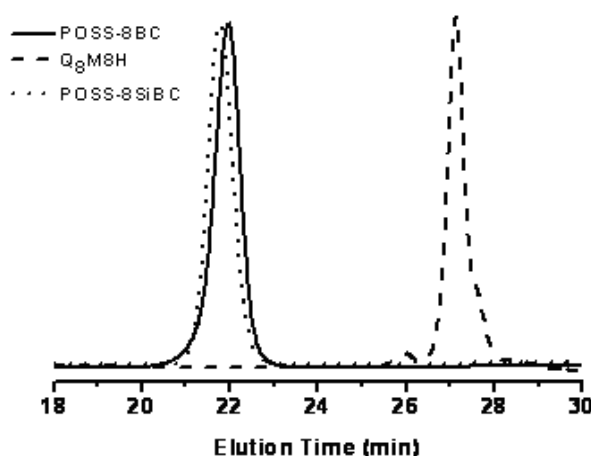


Fig. S1 GPC traces of POSS-8BC, POSS-8SiBC, and $Q_8M_8^H$.

^1H NMR Spectra. Chemical structures of POSS-8BC, POSS-5BC, and POSS-8SiBC are confirmed with ^1H NMR as shown in Fig. S2, S3, and S4. ^1H NMR spectrum of POSS-3.5BC is similar to that of POSS-5BC, except that integral of peak h is larger.

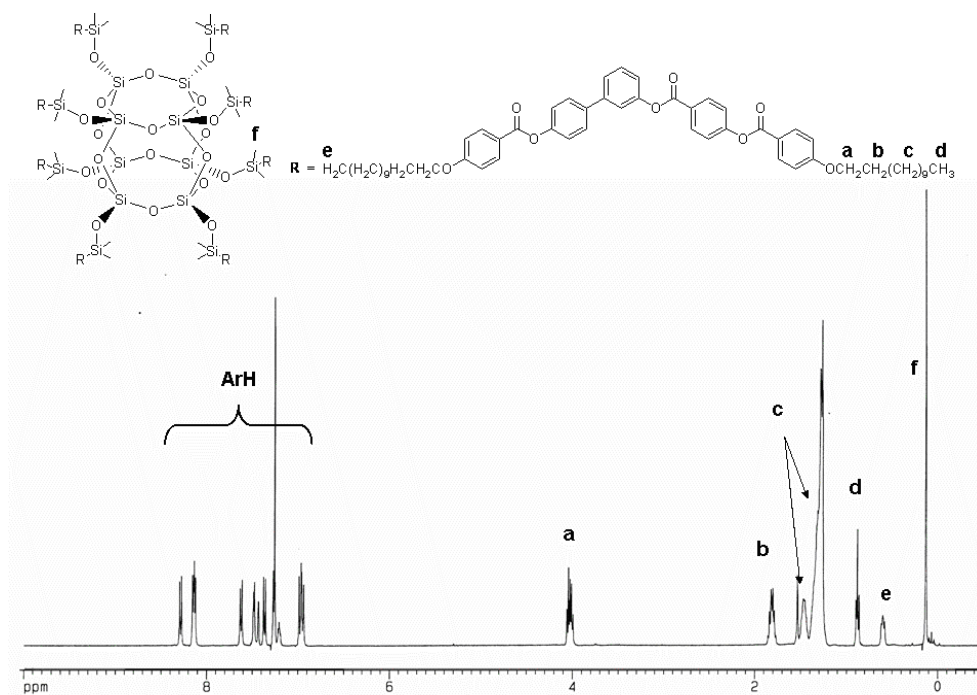


Fig. S2 ^1H NMR spectrum of POSS-8BC.

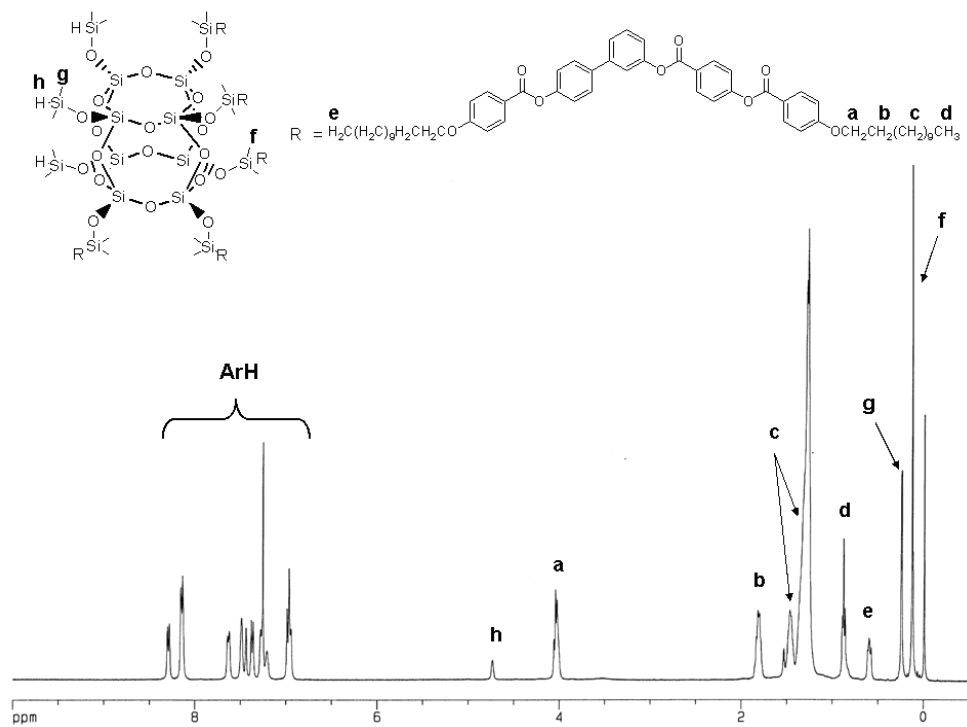


Fig. S3 ^1H NMR spectrum of POSS-5BC.

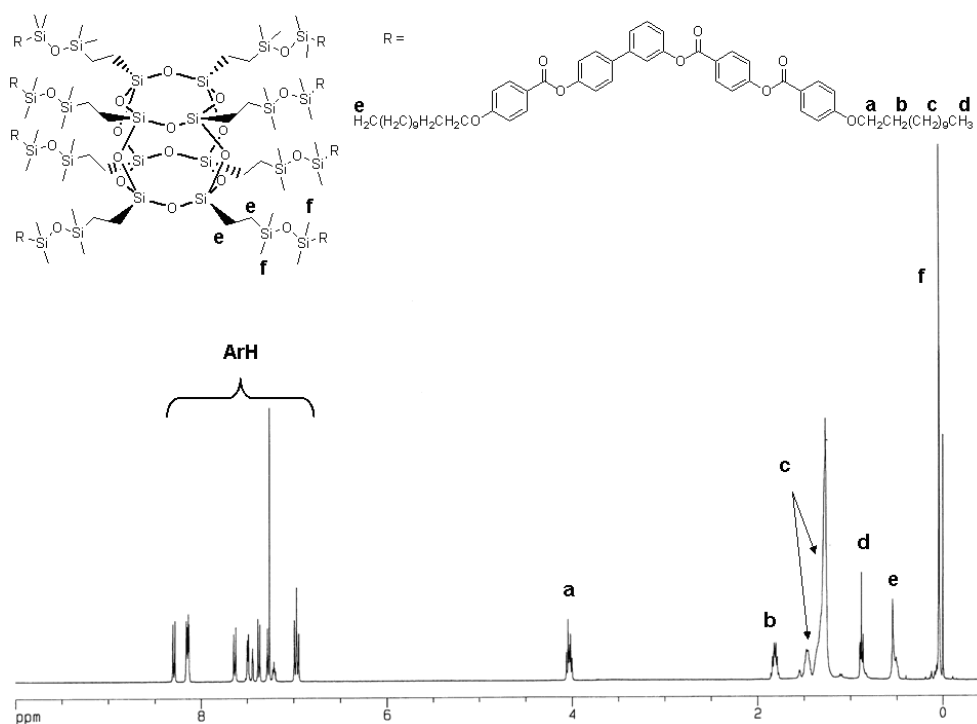


Fig. S4 ^1H NMR spectrum of POSS-8SiBC.

2D WAXD patterns of POSS-5BC and POSS-3.5BC. Liquid Crystalline phase structures of POSS-5BC and POSS-3.5BC were studied by 2D WAXD as shown in Fig. S5a and S5b, respectively. For both patterns, three pairs of diffraction arcs with scattering vector ratio of 1:2:3 appear on the meridian, and two pairs of scattering halos are located in the quadrants in the high-angle region. They are patterns of SmC phases.

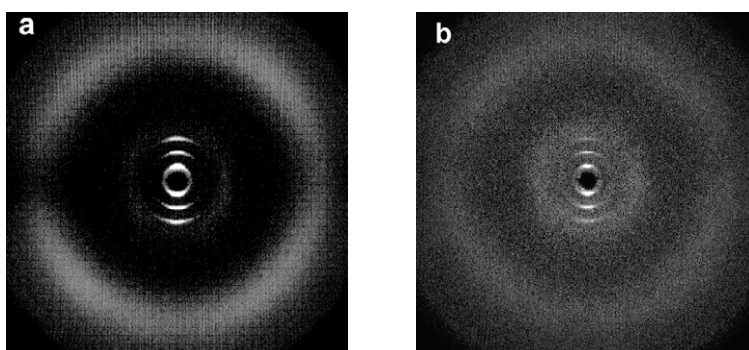


Fig. S5 2D WAXD patterns of POSS-5BC (a) and POSS-3.5BC (b) when X-ray beam is perpendicular to the shear direction.