From Flexible to Mesoporous Polybenzoxazine Resins Templated by Poly(ethylene oxide-\(b\)-\(\varepsilon\)-caprolactone) Copolymer through Reaction Induced Microphase Separation Mechanism

Wei-Cheng Chu, Jheng-Guang Li, and Shiao-Wei Kuo*

*Department of Materials and Optoelectronic Science, Center for Nanoscience and Nanotechnology, National Sun Yat-Sen University, Kaohsiung, 804, Taiwan

*To whom corresponding should be addressed

E-mail: kuosw@faculty.nsysu.edu.tw
TEL: 886-7-5252000 ext.4079
FAX: 886-7-5254099
Scheme S1: The possible different mesoporous polybenzoxazine by carefully controlling curing temperature and process.
Figure S1: $^1$H NMR of PEO$_{114}$-b-PCL$_{88}$ copolymer used in this study.
Figure S2: DSC thermogram of pure PA-OH by heating rate: 20 °C/min
Figure S3: TGA thermograms of polybenzoxazine/PEO-b-PCL blends of various compositions
Figure S4: (a) SAXS patterns and (b–e) TEM images of mesoporous polybenzoxazine templated by PEO$_{114}$-b-PCL$_{168}$ at weight fractions of (b) 40/60, (c) 50/50, (d) 60/40, and (e) 70/30
Figure S5: (a) SAXS patterns and (b–e) TEM images of mesoporous polybenzoxazine templated by PCL<sub>220</sub>-b-PEO<sub>2272</sub>-b-PCL<sub>220</sub> at weight fractions of (b) 40/60, (c) 50/50, (d) 60/40, and (e) 70/30.
Figure S6: N₂ adsorption/desorption isotherms of templated by (a) PEO₁₁₄₋b-PCL₁₆₈ and (b) PCL₂₂₀₋b-PEO₂₂₇₂₋b-PCL₂₂₀ = 5/5.