Supporting Information

Chelating-Assisted Soft-Templating Synthesis of Ordered Mesoporous Zinc Oxides for Low Concentration Gas Sensing

Xinran Zhou, Yongheng Zhu, Wei Luo, Yuan Ren, Pengcheng Xu, Ahmed A. Elzatahry, Xiaowei Cheng, Abdulaziz Alghamdi, Yonghui Deng and Dongyuan Zhao

a Department of Chemistry, State Key Laboratory of Molecular Engineering of Polymers, Shanghai Key Laboratory of Molecular Catalysis and Innovative Materials, State Key Laboratory of ASIC & System, iChEM (Collaborative Innovation Center of Chemistry for Energy Materials), Fudan University, Shanghai 200433, China

b College of Food Science and Technology, Shanghai Ocean University, Shanghai 201306, China

c College of Materials Science and Engineering, Donghua University, Shanghai 201620, China

d State Key Lab of Transducer Technology, Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences, Shanghai 200050, China.

e Materials Science and Technology Program, College of Arts and Sciences, Qatar University, PO Box 2713, Doha, Qatar

f Department of Chemistry, College of Science, King Saud University, Riyadh 11451, Saudi Arabia
Figure S1. The gel permeation chromatograph (GPC) trace of the lab-made PEO-b-PS.

Figure S2. The thermogravimetric analysis (TGA) curves of (a) diblock copolymer PEO-b-PS template and (b) the PEO-b-PS/Zn-100 composites from 25 °C to 700 °C under air with a heating rate of 5 °C min⁻¹.
Figure S3. (a) SAXS patterns, (b) TEM image of sample without citric acid after the same calcination procedure. No mesoporous structure was formed.

Figure S4. XRD patterns of calcined none-mesoporous ZnO.
Figure S5. (a) Nitrogen-sorption isotherms and (b) pore size distribution curves of calcined non-mesoporous ZnO. The surface area was calculated to be about 15 m$^2$/g.

Figure S6. SAXS patterns of PEO-\textit{b}-PS/Zn-100 and PEO-\textit{b}-PS/Zn-400.
Figure S7. (a) Nitrogen-sorption isotherms and (b) pore size distribution of the mesoporous ZnO recycled after gas sensing measurements. The recycled mesoporous ZnO has a BET surface area of 49 m²/g, and two sets of mesopores at 3.0 nm and 26.0 nm, respectively, which indicates a well-retained mesoporous structure with a slight structure shrinkage during gas sensing measurement at high temperatures.