Supporting Information

Ordered mesoporous C/TiO$_2$ composites as advanced sonocatalysts

Pengpeng Qiu$^1$, Wei Li$^2$, Kyounglim Kang$^1$, Beomguk Park$^1$, Wei Luo$^2$, Dongyuan Zhao$^2$, and Jeehyeong Khim$^1$*

$^1$School of Civil Environmental and Architecture Engineering, Korea University, Seoul 136-701, Republic of Korea

$^2$Laboratory of Advanced Materials and Department of Chemistry, Fudan University, Shanghai 200433, China

E-mail: hyeong@korea.ac.kr, dyzhao@fudan.edu.cn
Fig. S1. Schematic illustration for the synthesis of ordered mesoporous C/TiO$_2$ composites.
Fig. S2. Sonocatalytic degradation experimental setup. (a) amplifier, (b) transducer, (c) water jacket, (d) reactor, (e) container, (f) thermometer, (g) retort stand.
Fig. S3. TGA profiles of the ordered mesoporous C/TiO$_2$ composites with varied carbon content (5, 10, 15, 20, and 30 %). (a) 5C-95TiO$_2$-450, (b) 10C-90TiO$_2$-450, (c) 15C-85TiO$_2$-450, (d) 20C-80TiO$_2$-450, (e) 30C-70TiO$_2$-450.
Fig. S4. EDX analysis of 15C-85TiO$_2$-450 composites taken at Fig. 3B.
Fig. S5. TEM images (A) and HRTEM images (B) of the ordered mesoporous 10C-90TiO$_2$-450 composites. TEM image (C) and HRTEM images (D) of the ordered mesoporous 15C-85TiO$_2$-650 composites.
Fig. S6. (A) N\textsubscript{2} sorption isotherms and (B) pore-size distributions of the mesoporous C/TiO\textsubscript{2} composite 15C-85TiO\textsubscript{2} calcined at various temperatures (450, 550, 650, and 750 °C) in N\textsubscript{2}, (a) 15C-85TiO\textsubscript{2}-450, (b) 15C-85TiO\textsubscript{2}-550, (c) 15C-85TiO\textsubscript{2}-650, (d) 15C-85TiO\textsubscript{2}-750. For clear observation, 15C-85TiO\textsubscript{2}-550, 15C-85TiO\textsubscript{2}-650, and 15C-85TiO\textsubscript{2}-750 are shifted vertically by 40, 60, and 100 cm\textsuperscript{3}/g, respectively.
Fig. S7. Sonocatalytic reaction kinetic constant of the re-cycled 15C-85TiO₂-450 at each cycle.
Fig. S8. TEM images (A) and HRTEM images (B) of the mesoporous C/TiO$_2$ composites 15C-85TiO$_2$-450 after sonocatalytic reaction for 5 h. TEM images (C) and HRTEM images (D) of mesoporous titania before sonocatalytic reaction. TEM images (E) and HRTEM images (F) of mesoporous titania after sonocatalytic reaction for 5 h.