Electronic Supporting Information

Porphyranated Polyimide Honeycomb Films with High Thermal Stability for HCl Gas Sensing

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Scheme S1. Synthetic route for porphyrinated polyimide (PPI).

Figure S1. $^1$H NMR spectra (400 MHz, CDCl$_3$, 298K) of (a) HPI, (b) cis-DATPP, and (c) 15PPI.
Figure S2. TGA (A) and DSC (B) curves of the polyimides, HPI and 15PPI. The glass transition temperature ($T_g$) of HPI and 15PPI is around 296 °C. The temperature for 5% gravimetric loss of HPI and 15PPI are 543 °C and 547 °C, respectively.

Figure S3. (A) UV-visible absorption spectra and (B) fluorescence emission spectra of HPI, cis-DATPP, TPP, and 15PPI (excited at 420 nm).
**Figure S4.** Photographs of 15PPI honeycomb films. (a) original, (b) after exposing to HCl gas, and (c) after puffing with NH₃ gas.

**Figure S5.** Regaining of the quenching efficiency for the 15PPI dense film after exposing to HCl and NH₃ gases for five cycles.