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Electronic Supporting Information

Porphyrinated 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. ¹H NMR spectra (400 MHz, CDCl₃, 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.