

Supplemental document

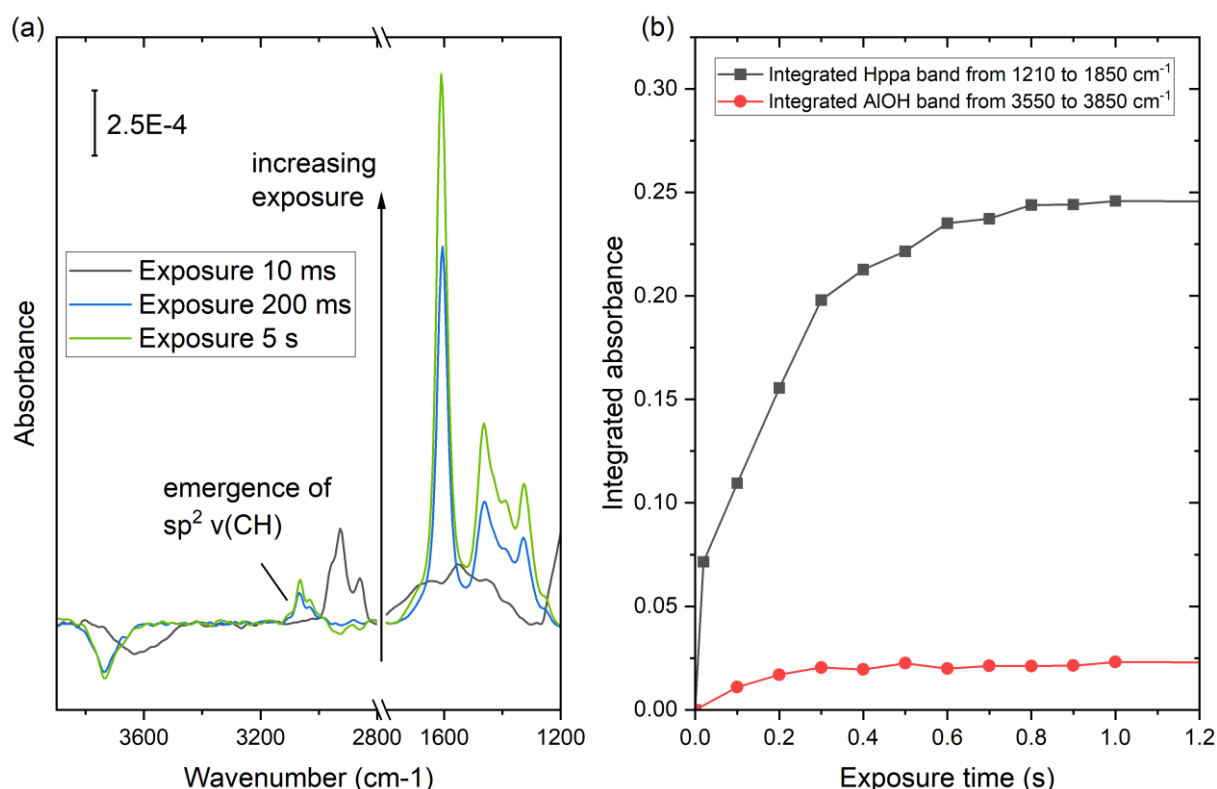


Figure 1. RAIRS measurement of coverage-dependent adsorption behaviours of Hppa on 10 nm Al₂O₃. (a) The evolution of spectral features from low to high coverage of Hppa (cumulative). With increasing coverage, the sp² v(CH) mode emerged while the sp³ v(CH) disappeared. These two observations suggest that the phenyl group of the Hppa adsorbates transitions from a flat-lying to a standing-up configuration. (b) The saturation trend of Hppa can be achieved in just few seconds, showing similar adsorption kinetics to Hacac.

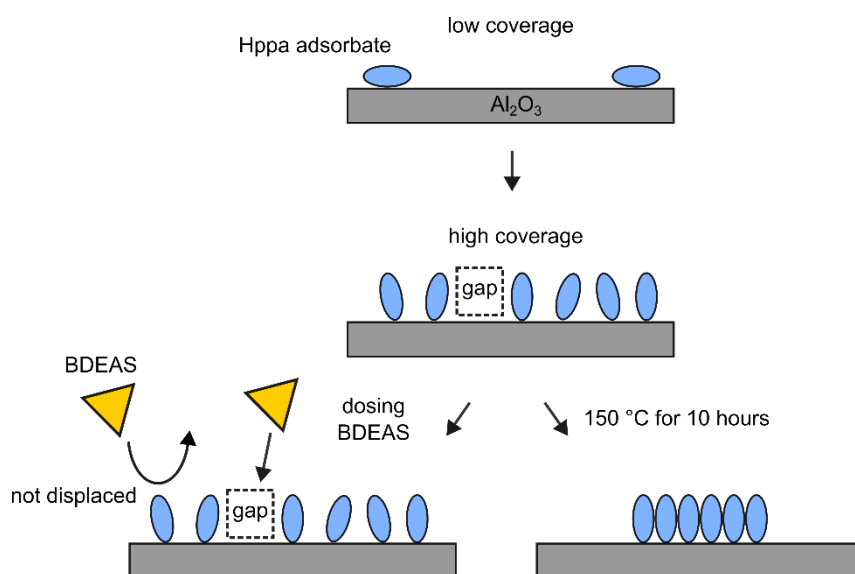


Figure 2. Schematic summarizing the observations from the saturation behaviour, precursor blocking, and annealing of Hppa.