

Topology and porosity modulation of polyurea films using interfacial polymerization

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Supporting information

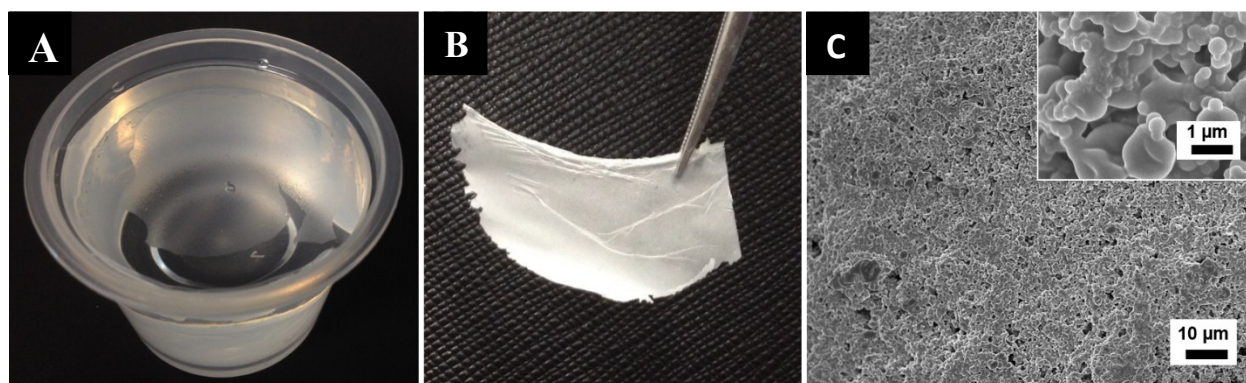


Figure S1. (A) Thin film at the interface and (B) free-standing DETA/HMDI film after drying (C) FESEM image of solid PU prepared by solution phase reaction of amine (DETA) and diisocyanate (HMDI) in THF.

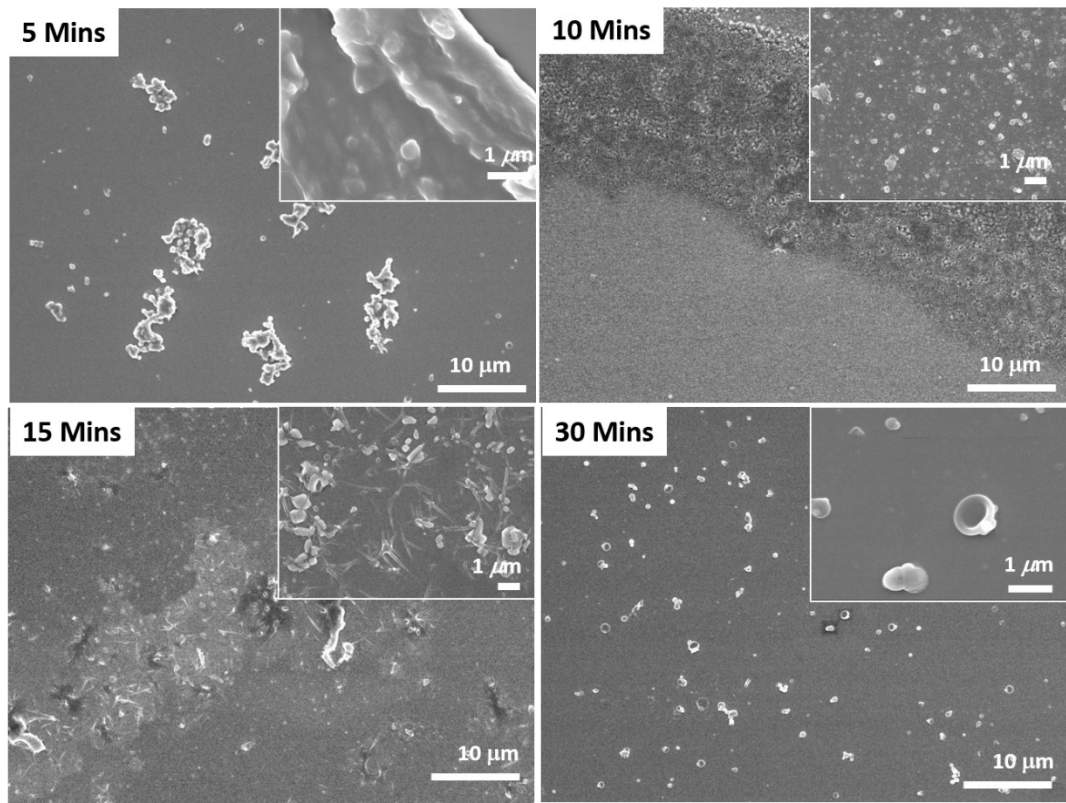


Figure S2. FESEM images of the DETA-HMDI polyurea film at different time intervals. Insets show magnified images.

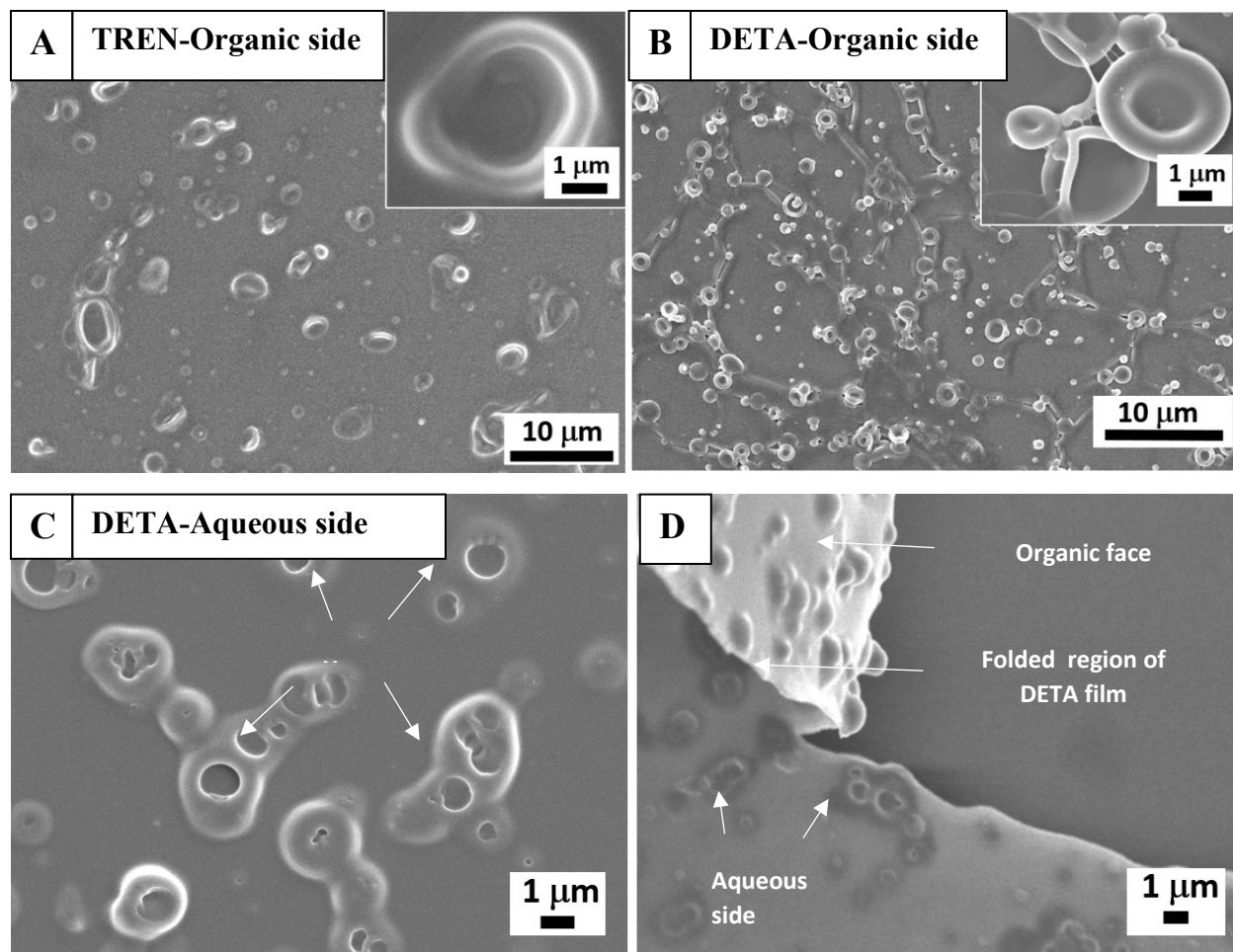


Figure S3. FESEM images of (A) organic side of TREN/HMDI film, (B) organic and (C) aqueous sides of DETA/HMDI films. (D) A folded end of DETA film showing both organic and aqueous faces of the films.

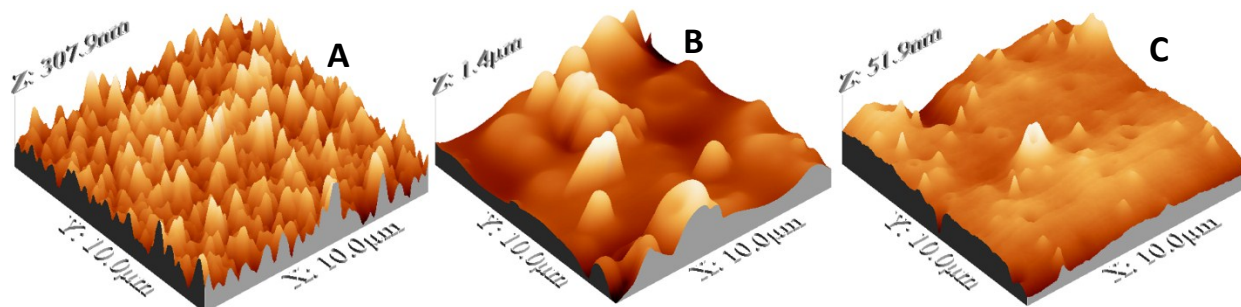


Figure S4. 3D view AFM micrographs of PU films corresponding to the height images in Figure 3. (A) Organic side of PEI/HMDI film; (B) organic side of DETA/HMDI film and (C) aqueous face of DETA/HMDI film.

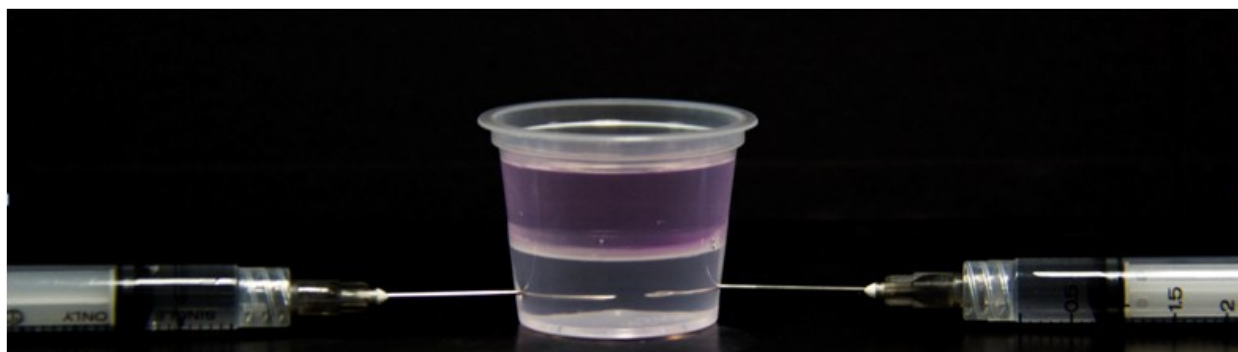


Figure S5. Photo representing a home-made arrangement of introducing reagents at the bottom phase without disturbing the film at the interface. Similar volumes are injected and removed at the same time.

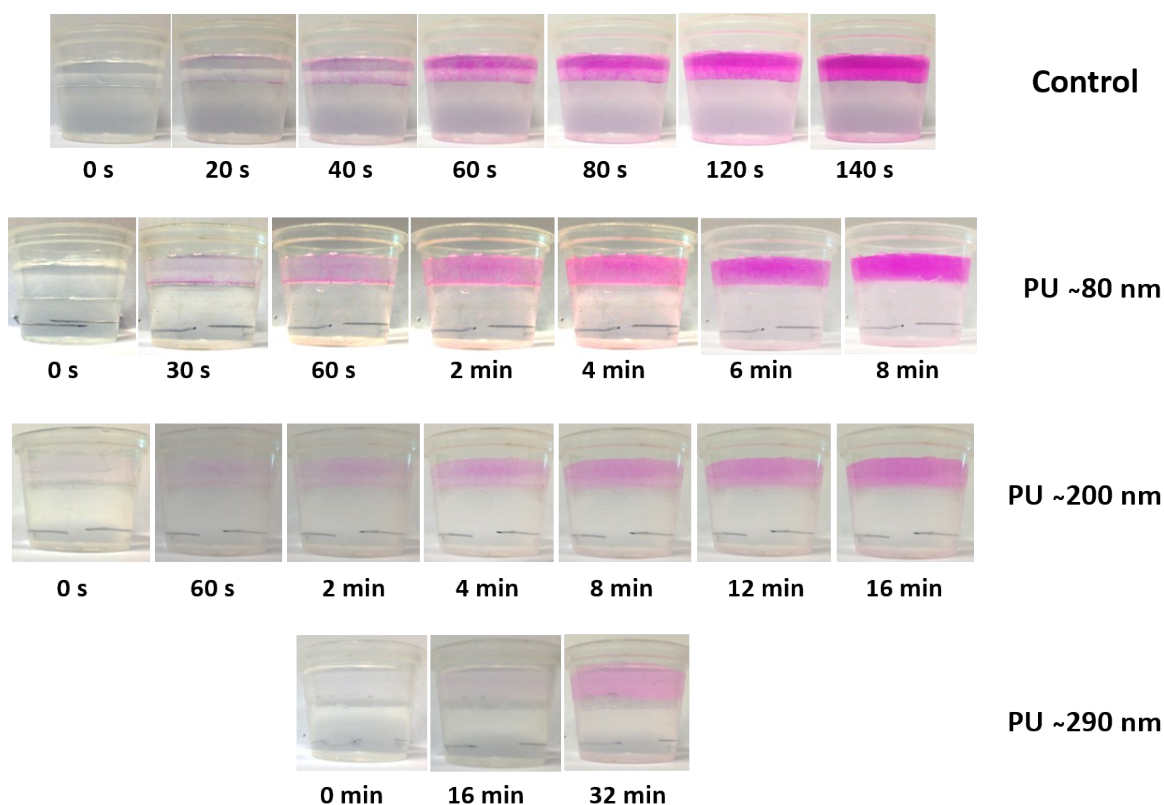


Figure S6. Transport of Phenolphthalein through the polyurea membrane with average thickness 80, 200 and 290 nm, respectively, at different time intervals. Control experiment was done without PU film.

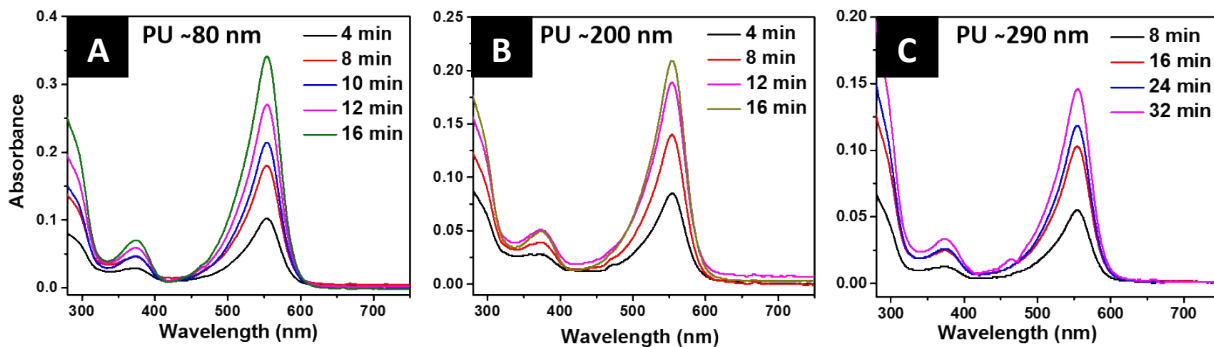


Figure S7. UV-Vis spectra of aqueous layers at different time intervals containing phenolphthalein diffused through PU films with average thickness of (A) 80 nm (B) 200 nm and (C) 290 nm.

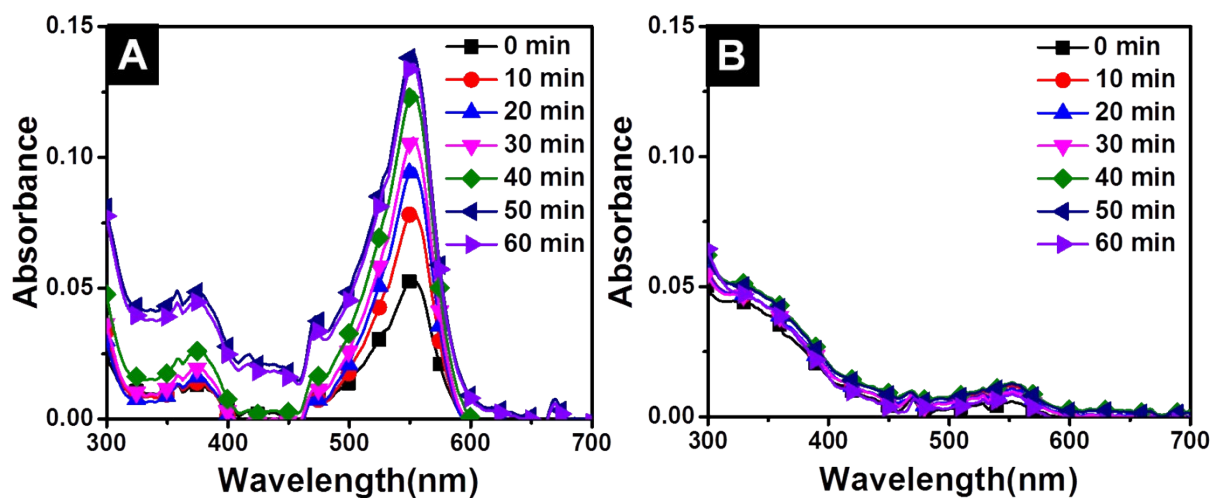


Figure S8. UV-Vis spectra of aqueous layers at different time intervals containing phenolphthalein diffused through DETA films with average thickness of (A) 50 nm (1 hr) and (B) 120 nm (24 hr).