Electronic Supplementary Material (ESI) for Physical Chemistry Chemical Physics.

Supporting information

Solvent transport through hard-soft segmented polymer nanocomposite

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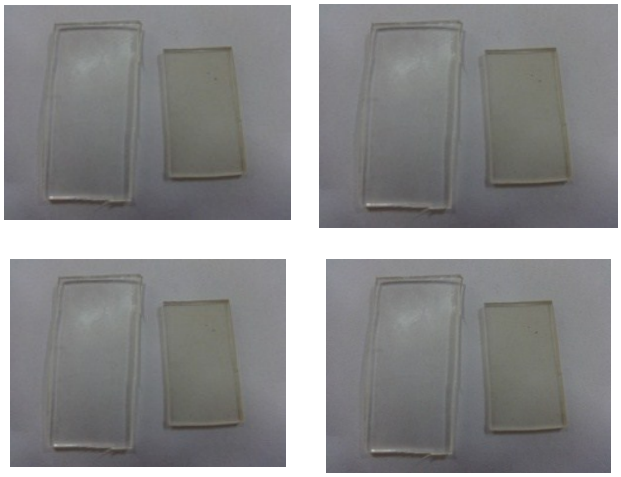

Figure S1. Photographs of films in the post equilibrium swollen (left side) and dry (right side) conditions. (a) PU; (b) PU1C; (c) PU3C; (d) PU5C

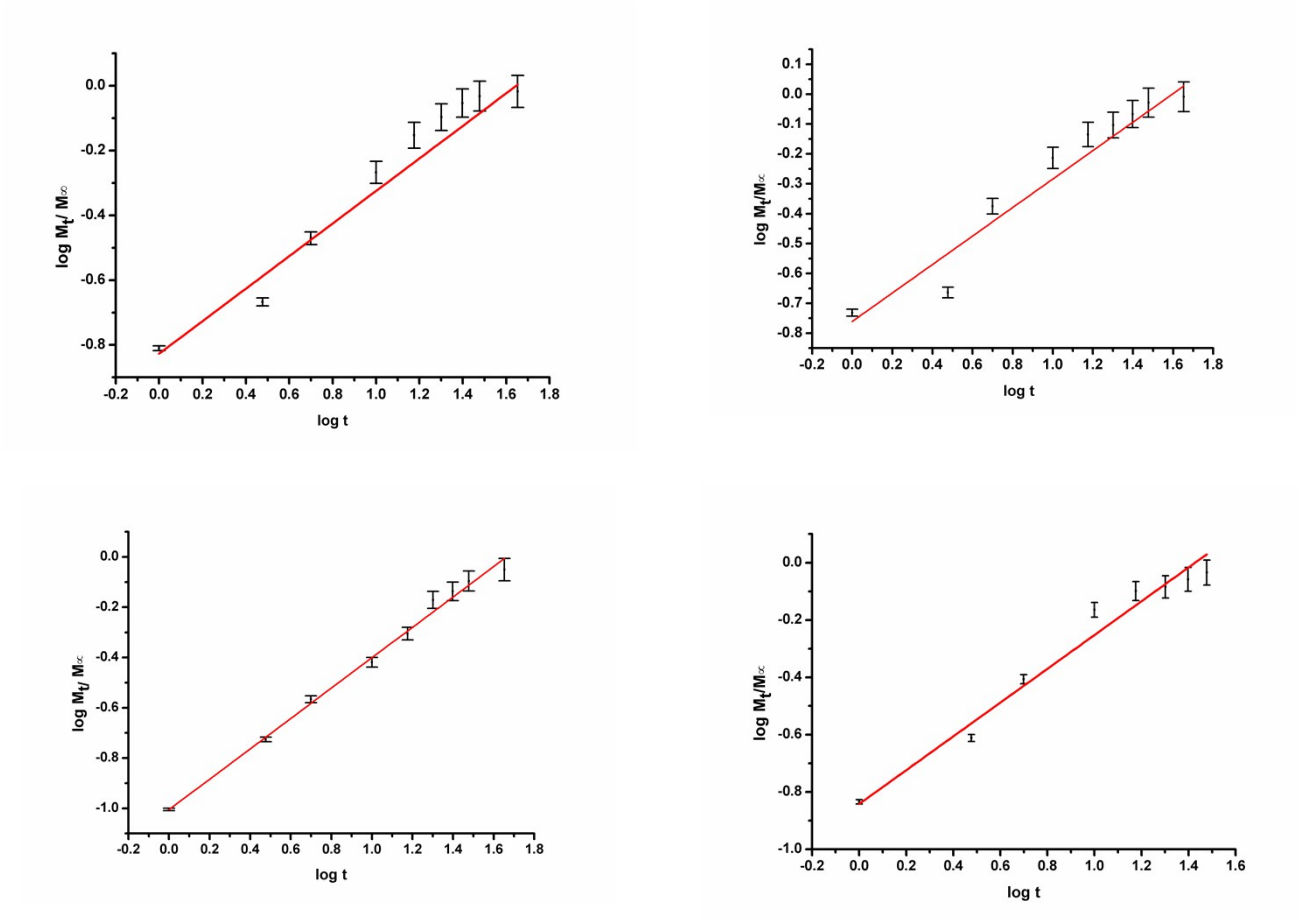

Figure S2. Plots of $\log(M_t/M_\infty)$ against log t: (a) PU; (b) PU1C; (c) PU3C; (d) PU5C

Table S1. Values of *n* obtained from the slopes in Figure S1

Sample	*n*
PU	0.51
PU1C	0.48
PU3C	0.58
PU5C	0.57

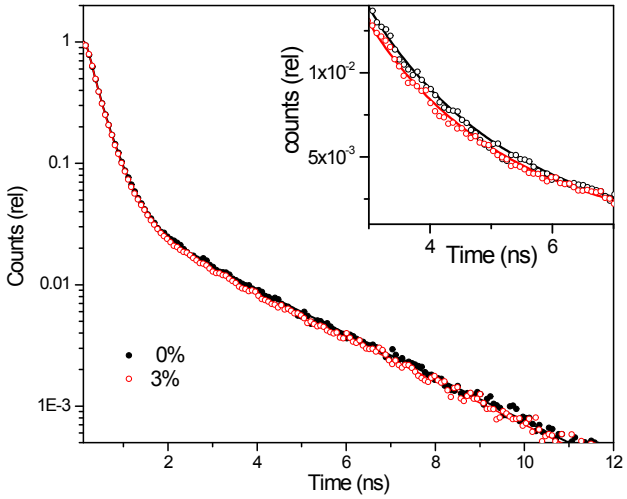

Figure S3. Sample raw spectra of positron annihilation life time spectroscope.

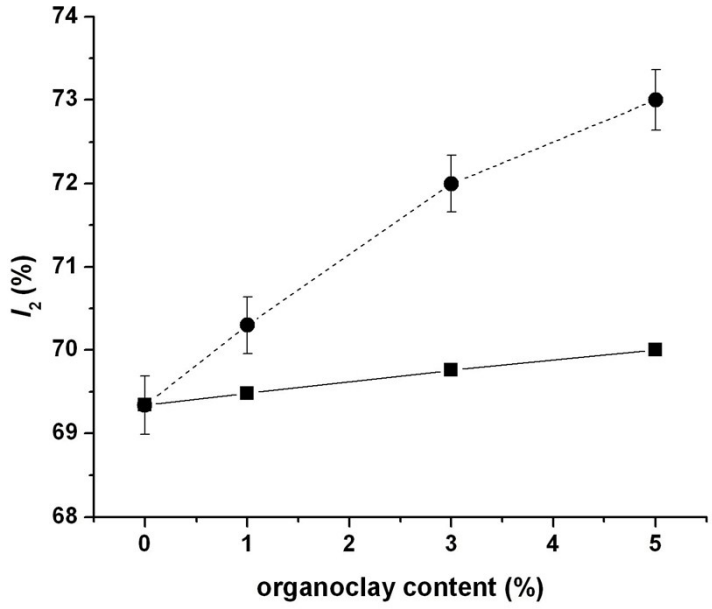

Figure S4. Second lifetime intensity as a function of clay fraction

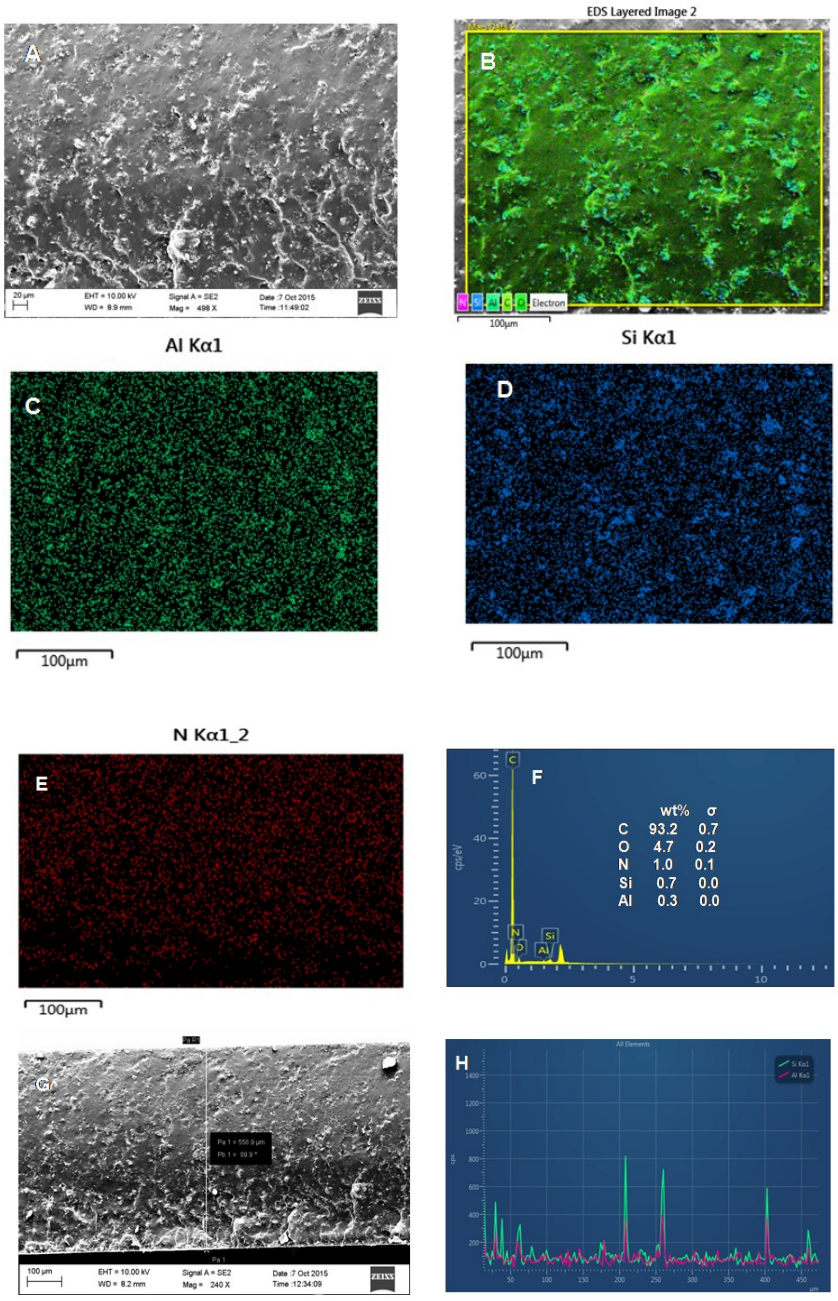

Figure S5. FESEM-EDS mapping of fractured PU5C. (A) crsoss-section morphology; (B) cross-sectional area selected for elemantal mapping; (C) EDX element mapping; (D) element Al; (E) element Si; (F) element N; (G) elemental composition; (G) a line scan of cross sectional area; (H) Al and Si composition variation as a fuction of line scan distance.

Table S2. Peak positions in small angle x-ray scattering of equilibrium swollen films.

Sample ID	Peak position (nm^{-1})			
	P_1[a]	P_2[b]	P_3[b]	P_4[b]
PU	1.07	-	-	-
PU1C	0.98	1.64	3.31	4.87
PU3C	0.98	1.62	3.26	4.87
PU5C	0.98	1.57	3.23	4.87

a; P_1 assigned to long range periodicity associated with hard segment domains

b: P_2, P_3 and P_4 are assigned to d_{001},d_{002} and d_{003} reflections, respectively from layered structure of clay.