Electronic Supplementary Material (ESI) for Journal of Materials Chemistry A.

Carboxylate- Intercalated Layered Double Hydroxides for H_2 Sorption

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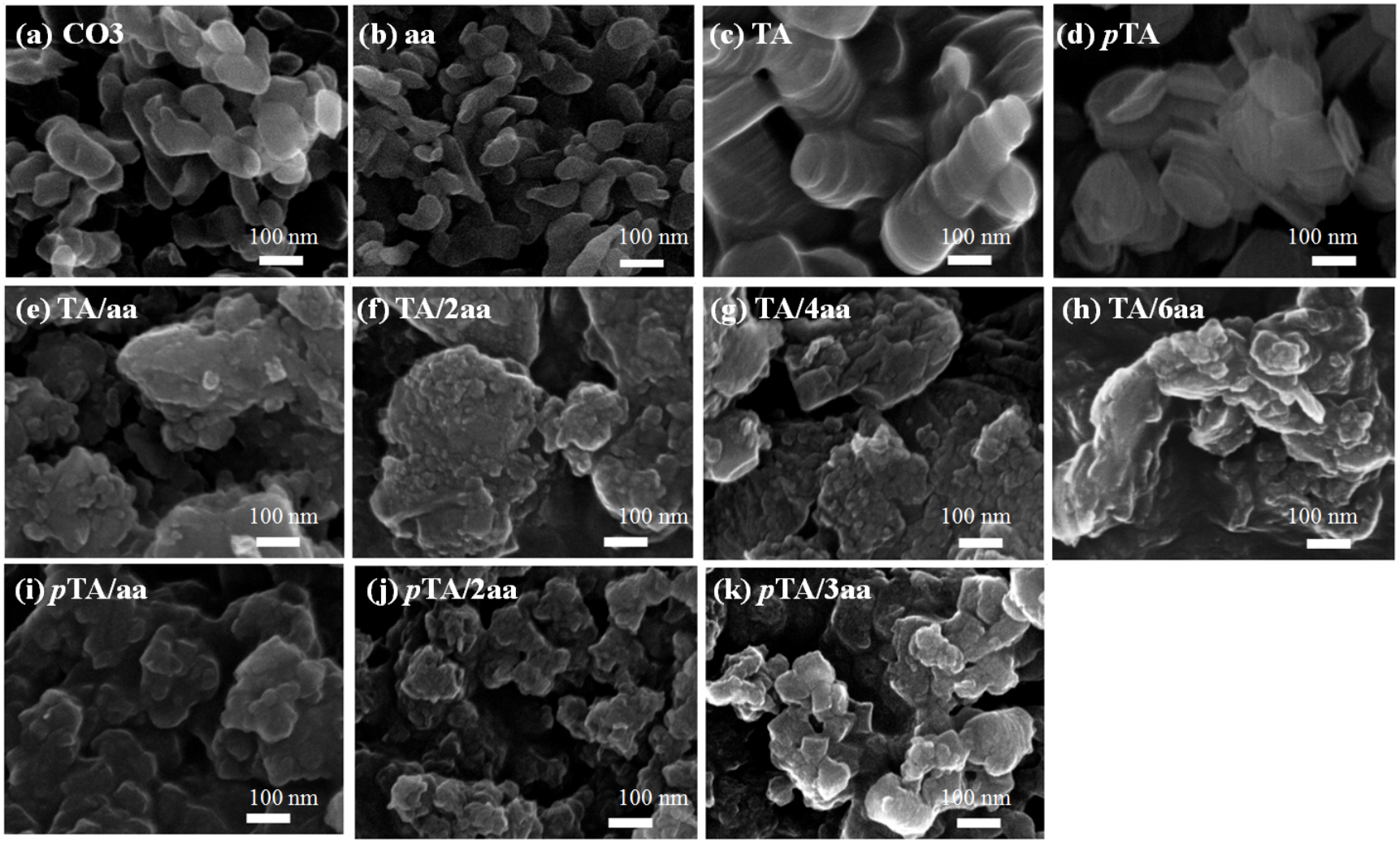

Figure S1. SEM micrographs of LDHs with different anions (a) CO3, (b) aa, (c) TA, (d) pTA, (e) TA/aa, (f) TA/2aa, (g) TA/4aa, (h) TA/6aa, (i) *p*TA/aa, (j) *p*TA/2aa, and (k) *p*TA/3aa.

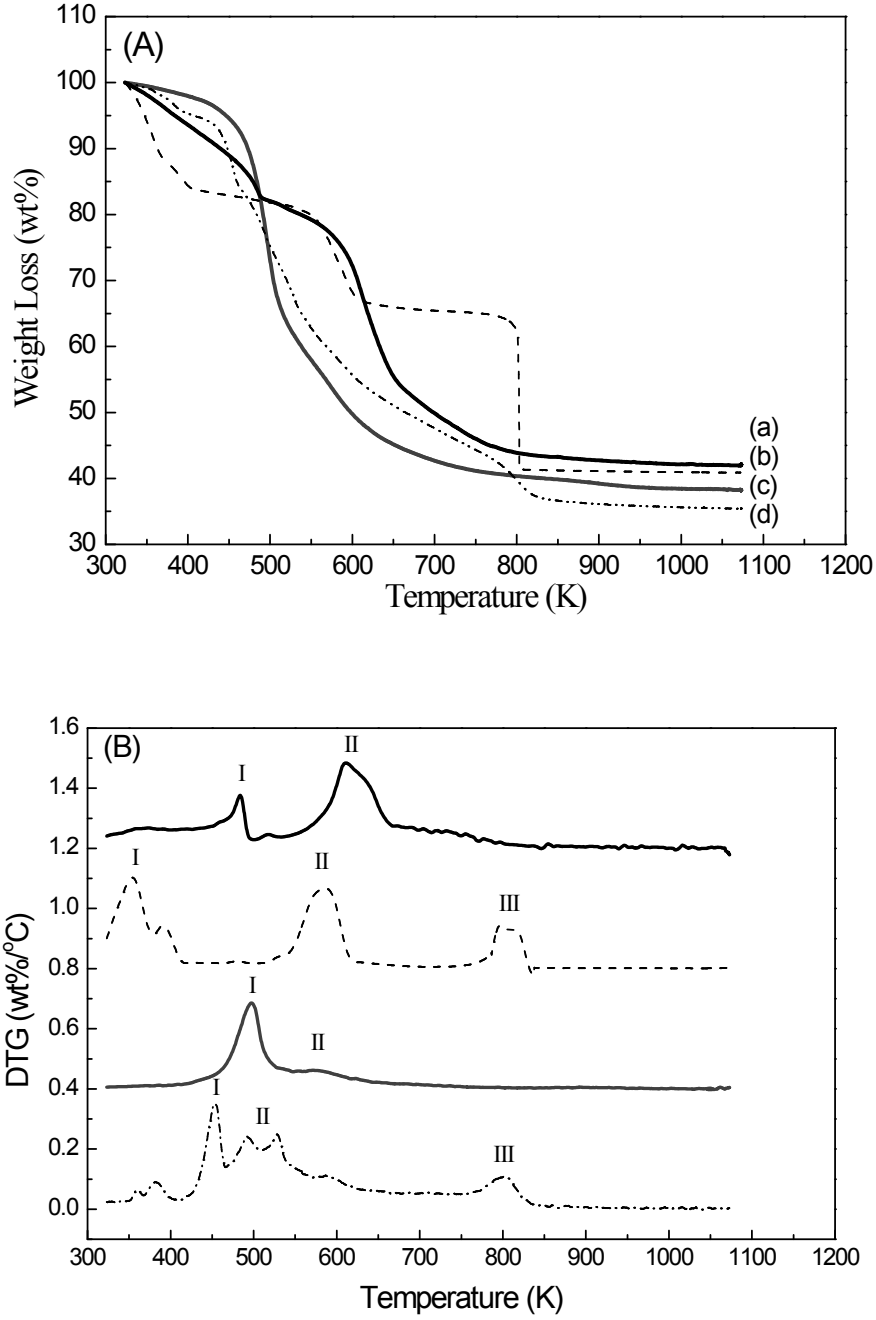

Figure S2. (A) TGA and (B) DTG profiles of LiAl- LDHs with different interlayer anions (a) aa^- (b) TA^{2-} (c) CO_3^{2-}, and (d) pTA$^-$.

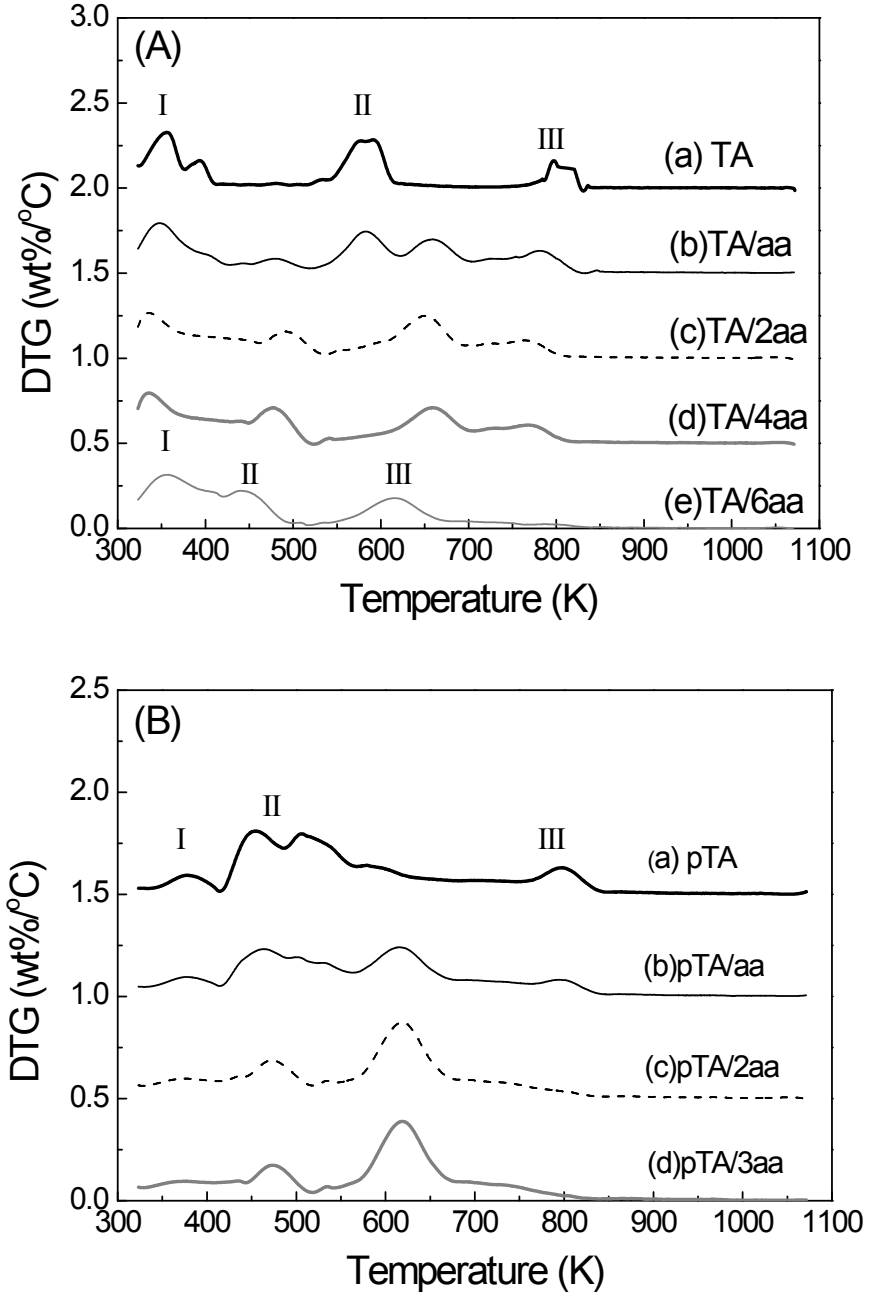

Figure S3. DTG profiles of LiAl- LDHs with mixed acetate and arylate anions (A) TA/*n*aa and (B) pTA/*n*aa.

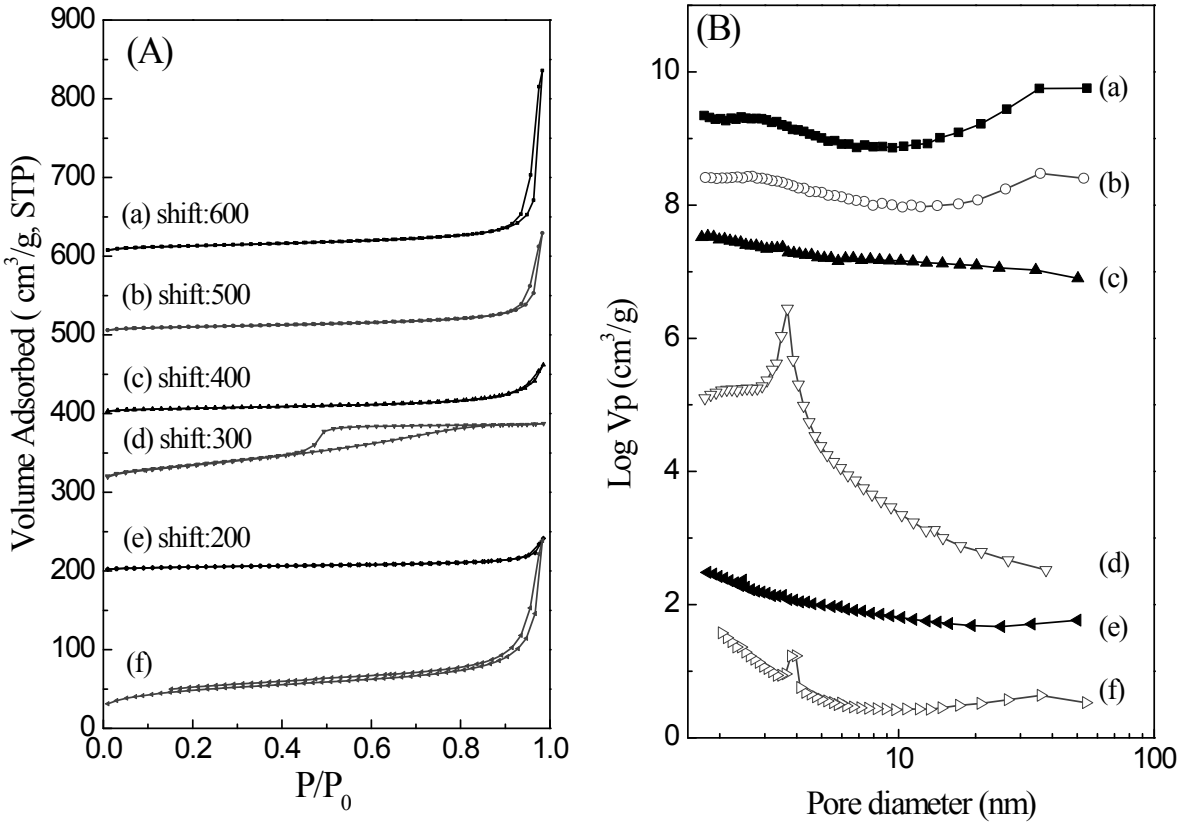

Figure S4. (A) N_2 adsorption-desorption isotherms and (B) BJH desorption pore size distribution of LiAl-LDHs with different interlayer anions: (a) CO3, (b) aa, (c) TA, (d) TA/4aa, (e) *p*TA, and (f) *p*TA/3aa.

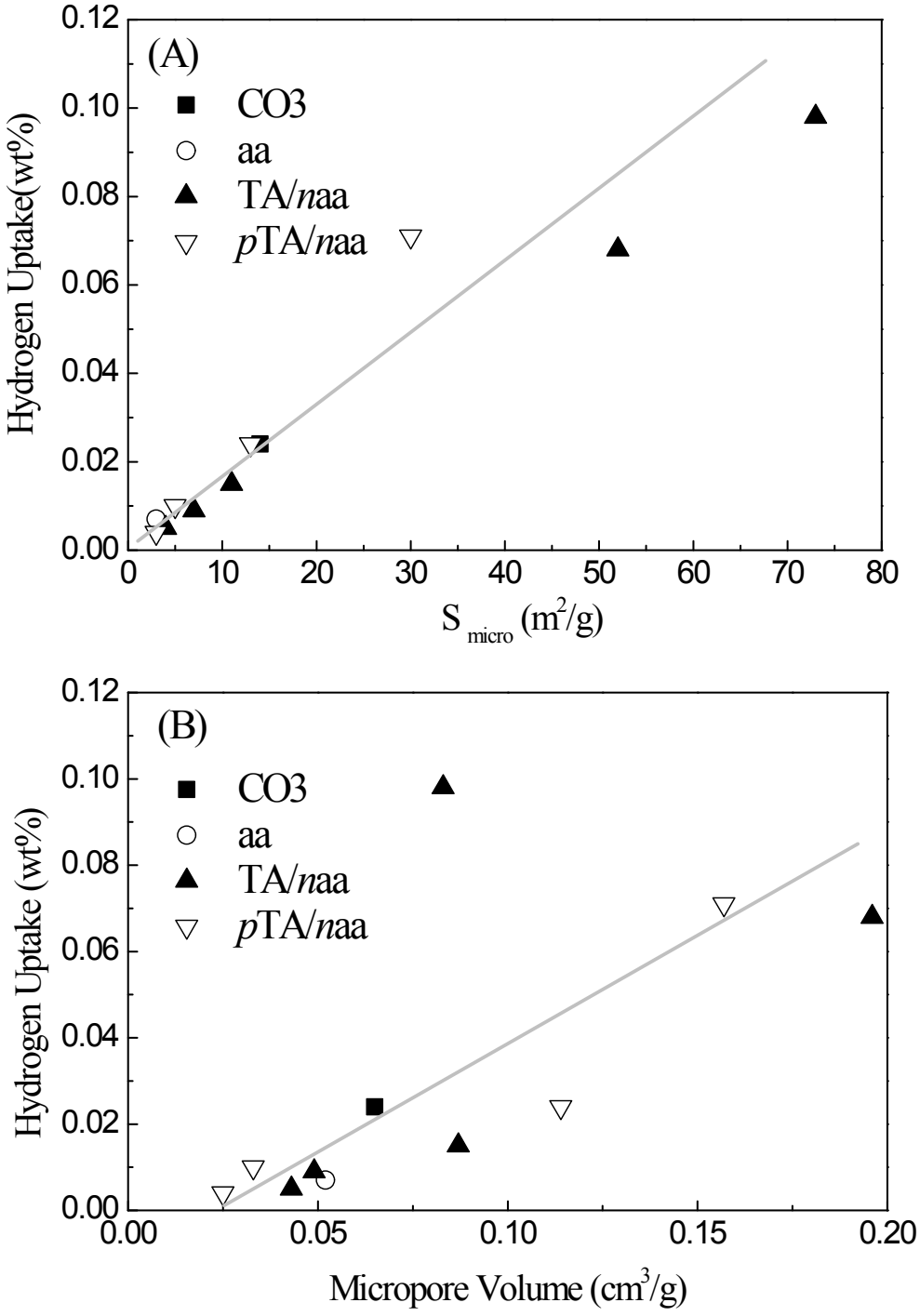

Figure S5. Relationship between the hydrogen uptake at 298K /100 atm and (A) microporous surface area, (B) micropore volume of LDHs with different interlayer anions.