Supporting Information for

Al_2O_3/TiO_2 Nanolaminate Thin Film Encapsulation for Organic Thin Film Transistors via Plasma-Enhanced Atomic Layer Deposition.

Lae Ho Kim,[a] Kyunghun Kim,[a] Seonuk Park,[a] Yong Jin Jeong,[a] Haekyoung Kim,[b] Dae Sung Chung,*[c] Se Hyun Kim,*[d] and Chan Eon Park*[a]

[a] Polymer Research Institute, Department of Chemical Engineering, Pohang University of Science and Technology, Pohang, North Gyeongsang 790-784, South Korea
E-mail: cep@postech.ac.kr

[b] School of Materials Science and Engineering, Yeungnam University, Gyeongsan, North Gyeongsang 712-749, South Korea
E-mail: hkkim@ynu.ac.kr

[c] School of Chemical Engineering and Material Science, Chung-Ang University, Seoul 156-756, South Korea
E-mail: dchung@cau.ac.kr

[d] Department of Nano, Medical and Polymer Materials, Yeungnam University, Gyeongsan, North Gyeongsang 712-749, South Korea
E-mail: shkim97@yu.ac.kr

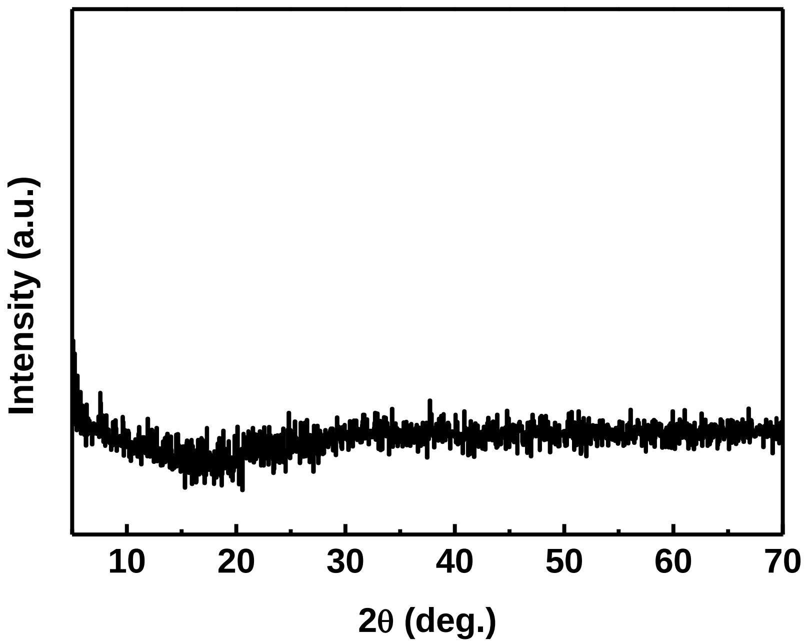

Figure S1. The out-of-plane XRD spectrum (5A beam-line at the Pohang Accelerator Laboratory, wavelength = 1.37 Å) of 50 nm thick Al_2O_3/TiO_2 NL film measured on the soda lime glass substrate.

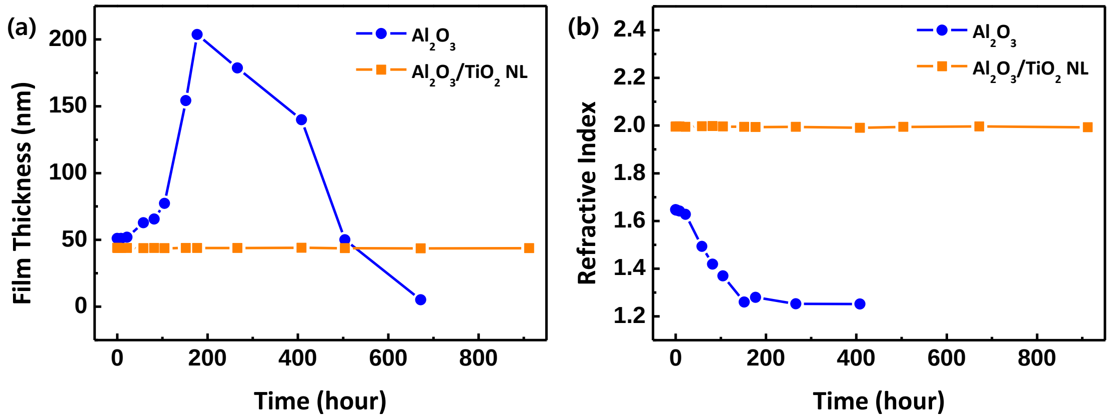

Figure S2. (a) Film thickness and (b) refractive index on Si wafer versus time in water at room temperature for single Al_2O_3 and Al_2O_3/TiO_2 NL coatings. All PEALD films were grown at 100 ºC. Increasing thickness of Al_2O_3 film results from increasing surface roughness.

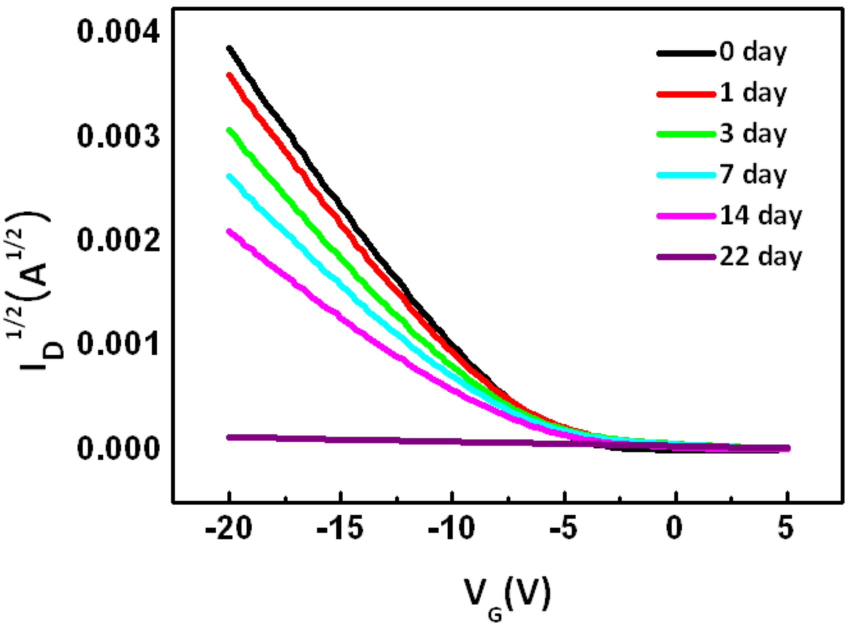

Figure S3. Time-dependent $I_D^{1/2}$ versus V_G characteristics of 200 nm thick SiO film passivated OTFT. Water and oxygen can be diffused and captured easily through the SiO film because thermal evaporated SiO film has loose microstructure than PEALD based metal oxide film.