Functional Precursor-Driven High-k Atomic Layer Deposition with Improved Throughput and Dielectric Performance

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AF1: Precursor Design and Development

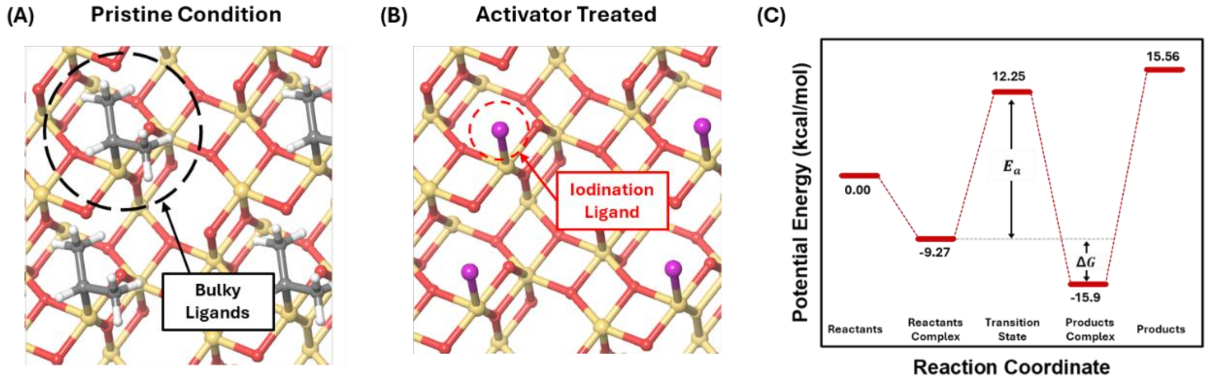

Figure 1. (A) Top-view image of a TiO_2 slab after precursor adsorption. (B) Top-view image of a TiO_2 slab after activator dosing. (C) Reaction energy profile for the activator reaction on the precursor-adsorbed surface.

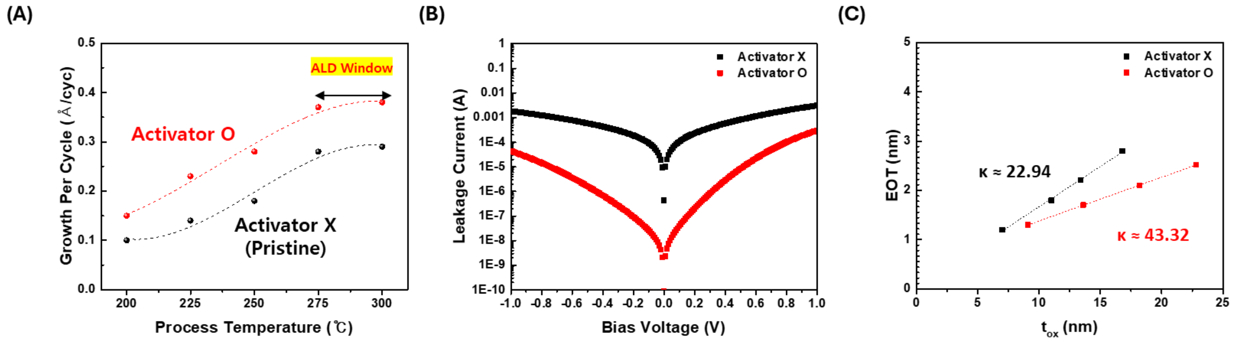

Figure 2. . (A) Temperature-dependent growth per cycle (GPC) of dielectric films deposited with and without the activator. (B) Leakage current characteristics of the dielectric films as a function of activator incorporation. (C) Dielectric constant (k) of the films, exhibiting a correlated dependence on the activator