

Molecular Layer Deposition of Titanium Nitride Cross-linked Benzene Using Titaniumchloride and 1,4-Phenylenediamine

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The organic-inorganic hybrid polymer thin films were deposited using the gas phase method which known as molecular layer deposition (MLD). Titaniumchloride ($TiCl_4$) and 1,4-phenylenediamine (PD) were used as monomers to deposit hybrid polymer. Self-terminating nature of $TiCl_4$ and PD reaction were demonstrated by growth rate saturation versus precursors dosing time. Infrared spectroscopic and X-ray photoelectron spectroscopy were employed to determine the chemical composition and state of hybrid polymer thin films. Layer by layer growth was showed by increasing UV-VIS absorption peak of hybrid polymer thin films.

Keywords: MLD, Hybrid film