

Gas-phase polymerized buffer layer for flexible moisture barrier by plasma polymerization

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Since organic materials are highly sensitive to water and oxygen, organic devices required to protect them by encapsulation materials. We used organic moisture barrier using plasma-polymerized layer. Plasma polymerization is a versatile technique for the deposition of films with functional properties suitable for a wide range of applications. The films are usually highly cross-linked polymers and show chemically and physically stable characteristics. In this study, we used monomer HDMSO, n-hexane, Furan. These monomers are vaporized in vacuum chamber and then plasma polymerized on PEN film. To observe moisture barrier characteristic, we analyzed FT-IR spectrum under various carrier gases, AFM(Atomic Force Microscope) and calculated WVTR(Water Vapor Transmission Rate) value using Calcium test under 85°C and 85% RH.