ABSTRACT

ADJUSTMENT OF N AND K VALUES IN A DARC FILM

CVD dielectric materials are generally preferred for anti-reflection coatings because their optical properties can be varied both by controlling composition and by suitable surface treatment. In prior art films of this type it can be difficult to control both the refractive index and the extinction coefficient simultaneously. The present invention shows how optical properties can be tailored to meet a range of predetermined values by depositing each dielectric anti-reflection coating as a series of sub-coatings. After each sub-coating has been deposited it is subjected to surface treatment through exposure to a gaseous plasma, thereby forming an interface layer which provides a wider window for fine tuning RI and K values. Generally the finished film will comprise 3-5 of these sub-coatings. Software simulation is used to determine the precise composition for each sub-layer as well as the optical properties of the DARC film. In-situ or off-line measurements of each sub-layer can also be used as a feedback tool to guide conditions for deposition of the next sub-layer.

(Fig. 3)



