

Removal of organic residue on glass substrates using an atmospheric pressure plasma

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In recent years, atmospheric pressure plasma treatment has become a convenient technique for improving the adhesion of coatings by increasing surface wettability without changing the bulk properties. The contaminants are removed from the surface to increase surface wettability. Various methods, such as solvent cleaning, plasma treatment, and ultraviolet(UV) cleaning, have been developed as surface cleaning processes. Atmospheric pressure plasma not only decreases the processing cost, but also has a greater potential for adaptability to continuous industrial processes.

In the study, the atmospheric pressure plasma was employed for removal of organic contaminants such as volatile organic solvents, instrument oils, etc. The system is a typical planar dielectric barrier discharge(DBD) system, except for the electric field applied to the electrodes. The contact angle of the substrate was measured before and after the plasma treatment. The result of the surface properties with respect to the treatment procedure was characterized by using the AFM, SEM and FT-IR.