

Abstract Submitted  
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**Characterization of three kinds of dielectric barrier discharge reactor for surface treatment of polymers**<sup>1</sup> MIN HUR, WOO SEOK KANG, YOUNG HOON SONG, Korea Institute of Machinery & Materials, PLASMA ENGINEERING LABORATORY TEAM — Low surface energy of polymers is the chief obstacle to prevention of their wider application. It is well known that the exposure of polymers to the plasma leads to the improvement of their printability, dyeability, and adhesion on the one hand by etching their surface on the other hand by grafting functional groups on their surface. In this work, three kinds of dielectric barrier discharge (DBD) reactor are proposed for surface treatment of polymer substrates. The discharge characteristics are investigated by using the voltage-current waveforms and optical emission spectroscopy. The plasma-modified polymer surfaces are characterized with contact angle measurement, scanning electron microscope, and x-ray photoelectron spectroscopy. Finally, the applicability of three kinds of DBD reactors to the polymer surface treatment is discussed based on the experimental results.

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