

Effect of a radio frequency plasma discharge in contact with liquid on the surface of polypropylene

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This study investigated the effect of a radio frequency (RF) plasma discharge in contact with liquid on the surface of polypropylene (PP) using Ar and O₂ as carrier gases. Liquid paraffin (tetradecane, pentadecane, hexadecane) and ionic liquid (1-butyl-3-methylimidazolium tetrafluoroborate) were utilized as liquid phase. After plasma treatment, the surface properties of PP were analyzed by contact angle measurement followed by surface free energy calculation, Fourier Transform Infrared by Attenuated Total Reflectance (FT-IR/ATR) and ESCA analysis. PP surface being modified was further able to be utilized for the immobilization of macrocycles like phthalocyanine.