

Surface characteristics of the stainless steel after one atmospheric pressure plasma treatment

Tang Shen^{*}, 루나, 권오준, 최호석
충남대학교
(atang@cnu.ac.kr^{*})

The stainless steel plates were treated by one atmospheric plasma at room temperature in order to improve the surface property. After plasma treatment, the contact angle test was conducted and, the wettability and the surface free energy of the stainless steel plates were both proved to be enhanced after plasma treatment. Through the analysis of the contact angle and surface free energy, the optimum plasma treatment conditions were also obtained, including the treatment time of 60 sec and the treatment power of 120W and the aging time of 3 to 5 min in the air. In the meanwhile, the surface morphology and chemical components of the stainless steel plates before and after plasma treatment were characterized by AFM and ESCA test, respectively, and it was proved that the surface roughness was slightly decreased and the morphology became more homogeneous after plasma treatment, and new functional groups appeared on the surface of the stainless steel after plasma treatment.