PTFE AND C₃F₆ DEPOSITION ON THE AISI 1050 STAINLESS STEEL FOR LUBRICATION BY RF PLASMA

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In this study, on surface of heat treated AISI 1050 stainless steel was coated in RF vacuum plasma system with different plasma parameters (treatment time, type of gas, power, pressure, electrode distance). First stainless steel surfaces were coated by plasma grafting of sprayed polytetrafluoroethylene (PTFE) using by Argon and Helium plasma. In the other process, thin layer was deposited by hexafluoropropene (C₃F₆) plasma on the stainless steel surface. After the deposition, surface morphology was analysed by Scanning electron microscope (SEM), Energy-dispersive X-ray spectroscopy (EDS), Atomic force microscope (AFM). Abrasion of samples was tested. As a result of abrasion test the C₃F₆ plasma processes more effective than PTFE coating. Optical emission spectrum (OES) and current-voltage measurements were used for plasma characterization.