

PO3084

CORROSION BEHAVIOUR OF PLASMA SURFACE OXIDIZED INCONEL 718 SUPER ALLOYYenal Vangölü¹, Özgü Bayrak¹, Ali Fatih YETİM¹, Ayhan ÇELİK¹¹Ataturk University, Erzurum, Turkey

yvangolu@atauni.edu.tr

Inconel 718 is a sample of nickel-iron based austenitic FCC structured super alloys. This alloy is commonly used at high temperature working conditions such as gas turbine engines, discs, turbine blades, nuclear reactors etc. Even though Inconel alloy exhibits high oxidation and corrosion resistance, these properties can be enhanced by using plasma oxidation, which is one of the most practiced surface treatments. In this study, Inconel 718 alloy was plasma oxidized at 600 and 700°C for 1 and 4 hours. Structural properties were analyzed by means of XRD, SEM and micro hardness tester and it was observed that several oxide phases were formed on the surface. Corrosion properties were determined with OCP, Polarization and impedance spectroscopy techniques in acidic environment.

Keywords

Inconel 718

Super alloy

Plasma oxidation

Corrosion

Oxide layer