ABSTRACT

In this report we will study the influence factor of electrochemical machining by studying electrochemical grading processes for many spacemen which mad durialumin and (copper – zinc) alloy , The studying will include designing and carrying out special library system of electrochemical grading to study influence machining factors of electrochemical processes which included the affected of current density applied between tool and work pace , the different of polarization between the tool and work pace , electrolyte concentration , gap width between tool and work pace , and the affect of time , into the surface roughness and metal removal processes into electrochemical grading to get best particle results (lessees roughness surface) , the experiment which done into duiralumin and (copper–zinc) spiciement show two different mechanism of electrochemical grading depending into the type of oxide film which appeared into the surface of spiciement during the electrochemical processes , the results show that the oxide film may be act assistant factor of arrangement metal removal processes in electrochemical grading so its improve the surface finish of duiralumin spa cement that because this type of oxide whish appear into (AL alloy) during the processes has uniform thickness with out porosity while the oxide film which appear into (copper – zinc) alloy during the processes play as negative factor causing increasing roughness and pitting because of its non uniform thickness and high great of porosity , in this report we was study the affect of every one of influence factor alone with mad other factor constant to obtain the optimum condition of processes , the result was (1.41) ampere /cm ^{2} for current density , (1.5) volt for different polarization , (2.5) % for electrolyte concentration , (0.3) for gap width , (30) mints and the

lessees roughness may be obtain by this electro chemical processes was (0.01)µm while the lessees roughness may be obtain by traditional grading processes (0.04) µm , and the optimum condition of processes for (copper – zinc) alloy was (0.85) ampere /cm ^{2} for current density , (0.5) volt for different polarization , (1) % for electrolyte concentration , (0.3) for gap width , (30) mints and the lessees roughness may be obtain by this electro chemical processes was (0.0064)µm while the lessees roughness may be obtain by traditional grading processes (0.012) µm.