

INFLUENCE OF PROCESS PARAMETERS ON POROSITY AND PORE DENSITY DURING SULFURIC ACID ANODIZATION OF AA 6061

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ABSTRACT

This study focuses on optimizing anodization parameters based on the Taguchi method to minimize porosity and pore density. Experiments have been conducted using the L16 orthogonal array in an anodization tank. AA 6061 specimens were used to conduct the experiments and each experiment is repeated three times and to ensure accuracy of the output. The statistical methods of signal to noise ratio (SNR) and the analysis of variance (ANOVA) are applied to investigate effects of electrolyte concentration, electrolyte temperature and voltage on porosity and pore density. Results of this study indicate that the voltage has the most significant effect on porosity and electrolyte temperature is the significant factor affecting pore density. Confirmation tests were also carried out to check the validity of the results.

KEYWORDS: AA 6061, Anodization, Porosity, Taguchi Optimization Methods, ANOVA