

Electroless Ni-P-C_g(Graphite)-SiC composite coating on cast AlSi alloy

Abstract

The study presents the electroless Ni-P-C_g-SiC composite coating on cast AlSi (ADC12) alloy where the bath temperature is maintained at 90°C, pH level is controlled between 4.5 to 5.0 and stirred at 450 rpm with mechanical stirrer to avoid particles sedimentation. The increase of the coating film thickness is very insignificant after one hour of coating duration. This outcome is supposed to be due to inconsistent chemical concentration in the plating bath after this period. The nominal coating thickness of 39 μm is achieved after the substrate is immersed for 1 hour in four consecutive plating baths, respectively. The coating film is also successfully adhered to the substrate surface with the SiC and C_g particles are homogenously distributed.

Keywords — AlSi Alloy, electroless nickel plating, graphite, silicon carbide (SiC).