Electrochemical Corrosion Performance of FSSP-Modified Copper Alloy Surface

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This study proposed a method using the friction stir surface processing (FSSP) technology to modify the surface layer of copper alloy and hence improve its corrosion resistance. H62 copper alloy was used for the purpose. The modification parameters in the FSSP were set as follows: rotation speed, 1200 rpm; traversing speed, 150 mm/min; and depth 0.15 mm. The findings revealed that the surface of the modified sample with a depth of 0.15 mm had a higher degree of metallographic refinement and better hardness and corrosion resistance. The modified samples after one, two and three passes were compared. It was found that the metallographic structure of the two-pass modified samples was fine and uniform, and the hardness and corrosion resistance were the best, followed by the one-pass modification, with the three-pass modification being the worst.

Keywords: Electrochemical corrosion; friction stir surface processing; FSSP; H62 copper alloy; modified surface; weight loss

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