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# Evaluation of Corrosion Property of Aluminium-Zirconium Dioxide (AlZrO2) Nanocomposites

**Authors :** M. Ramachandra, G. Dilip Maruthi, R. Rashmi

**Abstract :** This paper aims to study the corrosion property of aluminum matrix nanocomposite of an aluminum alloy (Al-6061) reinforced with zirconium dioxide (ZrO<sub>2</sub>) particles. The zirconium dioxide particles are synthesized by solution combustion method. The nanocomposite materials are prepared by mechanical stir casting method, varying the percentage of n-ZrO<sub>2</sub> (2.5%, 5% and 7.5% by weight). The corrosion behavior of base metal (Al-6061) and Al/ZrO<sub>2</sub> nanocomposite in seawater (3.5% NaCl solution) is measured using the potential control method. The corrosion rate is evaluated by Tafel extrapolation technique. The corrosion potential increases with the increase in wt.% of n-ZrO<sub>2</sub> in the nanocomposite which means the decrease in corrosion rate. It is found that on addition of n-ZrO2 particles to the aluminum matrix, the corrosion rate has decreased compared to the base metal.

**Keywords :** Al6061 alloy, corrosion, solution, stir casting, combustion, potentiostat, zirconium dioxide
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