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Corrosion Behaviour of AL 5082 Reinforced with TiB₂ Nano Composite in Marine Environment

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Abstract

Based on the application prominent choice of material is essential the development and end use. Aluminium nano composite can be used to replace the conventional aluminium alloy due to its considerable strength. Normally aluminium undergoes corrosion and the corrosion rate can be reduced by reinforcing suitable fillers in nano level. This attempt was made to study the influence of chromium addition to the corrosion behavior of AL 5082/TiB₂ composites. A stir casting technique used to prepare different % at 0, 2, 4, 6% composite of nano TiB₂ when it was immersed in 3.5 wt % from the Nyquist plots and equaling circuit fitting results. The charge transfer resistance values was observed to change from 10 to 3.7 30 to 9.5 19 to 2.8 for 0.3 and 6 wt % chromium content respectively after 72 hours of exposure. The increase in the charge of transferred resistance has obtained with an increasing chromium content has a clear indication of improved resistance to corrosion.

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Al 5082, NaCl, EIS, SEM

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