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Uniform corrosion behavior of aluminium composites reinforced with nanoclay / MWCNT

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AA 5083 are the widely used aluminium alloy materials for marine, offshore, structural, aerospace and automobile applications due to strength to weight ratio and resistance to corrosion. Further, to improve the life span of the material with increased mechanical and corrosion resistance property of the material Montmorillonite -MMT (Nanoclay) and Multi-wall Carbon Nanotube (MWCNT) was used by varying compositions like 3, 5, 7 and 9 by percentage weight and 1, 1.25, 1.5 and 1.75 by percentage weight to improve the corrosion behavior of the Aluminium Metal Matrix Composite (AMMC). By using compo-casting process the AMMC was developed. The developed composites surface morphology was studied using Scanning Electron Microscope (SEM) and Field-Emission Scanning Electron Microscope (FESEM). The tensile tests were carried out based on the ASTM standard A370, to find the mechanical property of the developed composite materials. According to the ASTM-G31, uniform corrosion tests were carried out for the developed composites in HCl solutions. AA 5083 with MWCNT shows the better mechanical and corrosion resistance property than Nanoclay.

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