

Study of The Structure and Corrosion Behavior of Al-15%MoAlloy

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Abstract: The influence of the addition of molybdenum on the structure and corrosion behaviour of aluminium was studied using optical microscopy, scanning electron microscope (SEM), potentiodynamic polarization and electrochemical impedance spectroscopy. The results show that the addition of 15%wt molybdenum causes the precipitation of the Al₁₂Mo intermetallic phase which appears in plate form on the Al matrix. The results of the electrochemical tests show that the addition of molybdenum displaces the corrosion potential of aluminium towards positive values from -699 mV/ECS to -633 mV/ECS and increases the charge transfer resistance from 4752 $\Omega \cdot \text{cm}^2$ to 6608 $\Omega \cdot \text{cm}^2$.

Keywords : corrosion, Al-15%MoAlloy, Electrochemical behavior