

Layered Double Hydroxide Self-healing Coatings on Magnesium Alloys

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Abstract In this study, it was found that micro-arc oxidation coatings or anodic oxide films contains magnesium and aluminum oxides, which can provide a source of Mg^{2+} and Al^{3+} to fabricate layered double hydroxide films. The growth mechanism of LDHs films had been investigated. Through the doping of low surface energy reagent, Mxenes and graphene oxides, the surface of "layered double hydroxide" films is further modified, so that the protective films exhibited many functional abilities, such as "corrosion resistance, wear resistance, self-healing and superhydrophobic". The self-healing films exhibited the service ability in a variety of complex environments..

Keywords Magnesium alloys, Layered Double Hydroxide, Self-healing, Coatings