

论文

镁锂合金表面含聚苯胺复合涂层的防腐性能研究

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摘要:

以过硫酸铵为氧化剂, 磺基水杨酸为掺杂剂, 用化学氧化法合成了聚苯胺-二氧化硅(PANI-SiO₂)复合材料; 通过FTIR, XRD和SEM对PANI-SiO₂复合材料进行表征; 以PANI-SiO₂粉末为功能成分, 环氧树脂为成膜物质, 在镁锂合金表面制备了PANI-SiO₂/环氧树脂复合涂层, 用开路电位和交流阻抗谱研究了涂层的防腐性能。结果表明, 在3.0 mass%的NaCl溶液中, PANI-SiO₂/环氧树脂复合涂层具有很好的防腐性能, 且认为PANI的存在使得镁锂合金表面生成一层钝化膜。

关键词: 聚苯胺 聚苯胺-二氧化硅 镁锂合金 防腐性能

ANTI CORROSION PROPERTIES OF POLYANILINE CONTAINING COATINGS ON Mg-Li ALLOY

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Abstract:

Polyaniline SiO₂ composites(PANI SiO₂) were prepared by means of chemical oxidation of aniline with ammonium persulfate in sulfosalicylic acid medium. The PANI-SiO₂ was characterized by FTIR, XRD and SEM methods. A coating consisted of PANI SiO₂ and epoxy resin(EP) was prepared on Mg-Li alloy, and its anti-corrosion properties were investigated by open circuit potential and electrochemical impedance spectroscopy. The results indicated that the PANI-SiO₂ containing coating showed good anti-corrosion property in 3.0 mass% NaCl solution. The excellent performance of PANI-SiO₂ containing coating is attributed to the passivation of Mg-Li alloy by polyaniline.

Keywords: polyaniline polyaniline-SiO₂ Mg-Li alloy anti-corrosion property

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