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## 研究报告

### 载波钝化对AZ91D镁合金锡酸盐化学转化膜耐蚀性能的影响

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**摘要:** 用载波钝化方法控制AZ91D镁合金锡酸盐转化膜成膜过程, 用扫描电镜 (SEM) 观察该转化膜的表面形貌, 用极化曲线和电化学阻抗谱研究载波钝化对该转化膜耐蚀性能的影响。结果表明, 载波钝化使AZ91D镁合金表面生成一层颗粒直径略大于传统浸泡处理的锡酸盐转化膜, 其耐蚀性能显著提高。

**关键词:** AZ91D镁合金 EIS 载波钝化 转化膜 耐蚀性

### EFFECT OF ALTERNATING CURRENT MODULATED PASSIVATION ON THE CORROSION RESISTANCE OF STANNATE CONVERSION COATING ON AZ91D ALLOY

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**Abstract:** By using alternating current (AC) modulated passivation technique, the formation process of stannate conversion coating could be controlled. The microstructure morphology of the conversion coating was observed by scanning electron microscopy. Polarization curves and electrochemical impedance spectra (EIS) were examined to understand the effect of the AC passivation on the corrosion resistance of the conversion coating. The experimental results revealed that the surface of AZ91D magnesium alloy after the AC passivation was covered by the hemispherical particles with larger size than that for traditional immersion conversion coating (imm-CC). The corrosion resistance of the conversion coating was significantly improved as a result of the AC passivation.

**Keywords:** magnesium alloy electrochemical impedance spectroscopy alternating current modulated passivation conversion coating corrosion resistance

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