

论文

防锈油膜失效过程中的导电行为转变

钟庆东(1),郑金(1,2),徐乃欣(3),印仁和(2),周国定(1)

1 上海电力学院电化学研究室,国家电力公司热力设备腐蚀与防护(部级)重点实验室, 2上海大学化学系, 3中国科学院上海微系统研究所

摘要:

采用电位-电容法及Mott-Schottky分析技术研究了自腐蚀电位条件下防锈油膜在3%氯化钠溶液中失效过程的导电机制转变行为.研究表明,防锈油膜失效过程中存在半导体导电特征,随着浸泡时间的延长,防锈油膜从浸泡初期的p型半导体转变为n型半导体,防锈油膜逐渐出现两个空间电荷过渡层,并且计算了不同转变时期防锈油膜中的电子给体(ND)和电子受体(NA)的密度.

关键词: 防锈油膜 失效 导电机制

SEMI-CONDUCTIVE BEHAVIOR DURING DEGRADATION OF A RUST PREVENTIVE OIL FILM ON 304 STAINLESS STEEL IN 3% NaCl SOLUTION

(1),ZHENG Jin(1,2),YIN Ren-he(2),ZHOU Guo-ding(1)

Electrochemical Research Group,Shanghai University of Electric Power, Key Laboratory of State Power Corporation of China, 2 Department of Chemistry,Shanghai University

Abstract:

In this paper,conducting transformation of a rust preventive oil film on 304 stainless steel in 3% NaCl solution under potential was studied by means of potential-capacitance method and Mott-Schottky analysis.It was pointed out that there existed semiconducting behaviour of the rust preventive oil film during its degradation.With increasing immersion time the rust preventive oil film transformed from p type semiconductor at the early stage of immersion to n type semicon- ductor,two transition layers of space charge gradually formed in the rust preventive oil film. ND and NA of oil film in different transition process were also calculated.

Keywords: rust preventive oil coating degradation conducting mechanism

收稿日期 2002-11-30 修回日期 2003-02-16 网络版发布日期 2004-03-25

DOI:

基金项目:

通讯作者: 钟庆东 Email: qdzhong@hotmail.com

作者简介:

参考文献:

本刊中的类似文章

1. 钟庆东, 郑金, 徐乃欣, 印仁和, 周国定. 防锈油膜在5% Na₂SO₄溶液中的半导体导电行为[J]. 腐蚀科学与防护技术, 2004,16(5): 276-279

文章评论

反馈人	<input type="text"/>	邮箱地址	<input type="text"/>
反馈标题	<input type="text"/>	验证码	<input type="text" value="1625"/>
<input type="text"/>			

扩展功能

本文信息

Supporting info

PDF (568KB)

[HTML全文]

参考文献

服务与反馈

把本文推荐给朋友

加入我的书架

加入引用管理器

引用本文

Email Alert

文章反馈

浏览反馈信息

本文关键词相关文章

▶ 防锈油膜

▶ 失效

▶ 导电机制

本文作者相关文章

▶ 钟庆东

▶ 郑金

▶ 徐乃欣

▶ 印仁和

▶ 周国定

PubMed

Article by

Article by

Article by

Article by

Article by