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表面与界面工程

EIS法研究3种配套涂层体系的腐蚀电化学行为

刘旭文, 熊金平, 曹京宜, 左禹

北京化工大学材料科学与工程学院;海军涂料分析检测中心

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摘要

采用电化学阻抗谱(EIS)研究了由水性无机富锌底漆、环氧中间漆和氯化橡胶面漆3种涂料配套而成的3种不同涂层体系在3.5%NaCl溶液中的电化学腐蚀行为，考察了氯化橡胶面漆、水性无机富锌底漆/氯化橡胶面漆、水性无机富锌底漆/环氧中间漆/氯化橡胶面漆这3种涂层体系的阻抗谱在浸泡过程中的演化并据此比较了3种涂层体系的防护性能。结果表明，两涂层体系的防护性能比单涂层的还要差，三复合涂层体系的防护性能最好。根据涂层腐蚀电化学阻抗谱特征推测，中间漆在三复合涂层体系中起到了使底漆和面漆结合更加紧密的桥梁作用。

关键词

涂层 电化学阻抗谱 浸泡

分类号

Electrochemical corrosion behavior of three coating systems by EIS

LIU Xuwen,XIONG Jinping,CAO Jingyi,ZUO Yu

School of Materials Science and Engineering , Beijing University of Chemical Technology; Navy Coating Analysis and Test Center

Abstract

The electrochemical corrosion behavior of chlorinated rubber top coating (single layer), inorganic zinc-rich primer/chlorinated rubber top coating (double layer) and inorganic zinc-rich primer/epoxy middle paste /chlorinated rubber top coating (tri-layer) in 3.5% NaCl solution was studied with electrochemical impedance spectroscopy (EIS).A series of impedance spectra of three coating systems during immersion were measured, and the protective properties were compared by the spectra.The results showed that the protective properties of the double layer was even worse than that of the single layer and the protective properties of the tri-layer coating was the best among the three coating systems.The epoxy middle paste played a very important role in the protective properties of the composite coating.

Key words

coating；EIS；immersion

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通讯作者 熊金平 xiongjp@mail.buct.edu.cn