

论文

碳钢和耐候钢在北京城市大气环境中初期腐蚀行为

林翠, 李晓刚, 刘晓东

北京科技大学材料学院腐蚀与防护中心

摘要:

对碳钢和耐候钢在北京城市大气中的初期腐蚀行为进行了研究.主要采用金相、扫描电镜、X-射线衍射方法分析和探讨了初期腐蚀层形貌、腐蚀产物和合金元素的分布.结果表明:在腐蚀初期,耐候钢表面生成的锈层较碳钢致密,裂纹和孔洞相对较少;25?d后碳钢和耐候钢局部都出现了分层现象,腐蚀产物没有区别,差别主要是锈层中合金元素的作用.耐候钢锈层中有Cu、Cr合金元素的析出,聚集在裂纹处可抵御大气中水气及其有害离子的侵入,防止基体金属进一步腐蚀.

关键词: 北京大气环境 碳钢 耐候钢 初期腐蚀 合金元

THE INITIAL STAGE OF ATMOSPHERIC CORROSION OF CARBON AND WEATHERING STEEL IN BEIJING CITY ATMOSPHERE

Cui Lin,,

北京科技大学材料学院腐蚀与防护中心

Abstract:

This paper focuses on the initial corrosion behavior of carbon and weathering steel.The surface morphology of corrosion layer,corrosion products,structure and alloy elements of rust layer in natural city atmosphere were studied by metallographic observation,SEM and XRD.The results show that the rust layer of weathering steel was a little denser than that of carbon steel at the initial corrosion period.Two layers partly formed in both carbon and weathering steel after 25 days,there was no essential difference of corrosion products in both of them.The iffERENCE in rust layer was mainly due to the function of alloy elements.Cu,Cr elements were found in rust layer of weathering steel.They were concentrated in the cracks and voids,which prevented water,oxygen and pollutants penetrating to the steel substrate.

Keywords: Beijing city atmosphere carbon steel weathering steel atmospheric corrosion alloy elements

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通讯作者: 林翠

作者简介:

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