

REACTION KINETICS, CATALYSIS AND...

氯离子在含硫及含氮颗粒物环境中对低碳铁基大颗粒大气颗粒物的影响

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收稿日期 网络版发布日期 接受日期

摘要 The effect of chloride on the atmospheric corrosion of cast iron in sulphur or nitrogen bearing pollutant was investigated by using periodic wet-dry test, electrochemical experiment and surface tension test. Scanning electron microscopy coupled with energy dispersive atomic (EDAX) and stereoscopic microscopy was used to identify the corrosion processes and products. Cl^- and NO_3^- were shown accelerating effects during the whole corrosion process but depression effects were observed in Cl^- and HSO_4^- bearing pollutant at the initial corrosion stage. However, with the corrosion going on, the depression effects was less obviously and the initial corrosion process was investigated from the viewpoint of surface activity. At the initial corrosion stage, the corrosion rate was proportional to the adsorptivity of anions, but as corrosion went on, the penetration effect of anions and different characteristics of the corrosion products began to dominate the corrosion process, which led to changes on the corrosion rate.

关键词

DOI:

Effect of Chloride on the Atmospheric Corrosion of Cast Iron in Sulphur or Nitrogen-Bearing Pollutant Environment

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Received Revised Online Accepted

Abstract The effect of chloride on the atmospheric corrosion of cast iron in sulphur or nitrogen bearing pollutant was investigated by using periodic wet-dry test, electrochemical experiment and surface tension test. Scanning electron microscopy coupled with energy dispersive atomic (EDAX) and stereoscopic microscopy was used to identify the corrosion processes and products. Cl^- and NO_3^- were shown accelerating effects during the whole corrosion process but depression effects were observed in Cl^- and HSO_4^- bearing pollutant at the initial corrosion stage. However, with the corrosion going on, the depression effects was less obviously and the initial corrosion process was investigated from the viewpoint of surface activity. At the initial corrosion stage, the corrosion rate was proportional to the adsorptivity of anions, but as corrosion went on, the penetration effect of anions and different characteristics of the corrosion products began to dominate the corrosion process, which led to changes on the corrosion rate.

Key words

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| 接受日期 | 778 |
| 中图分类号 | 779 |
| 文献标识码 | 779 |
| 文章编号 | 779 |
| 基金项目 | 780 |
| 通讯作者 | 780 |
| 通信地址 | 780 |
| 电话 | 780 |
| 电子邮箱 | 780 |