

论文

石英晶体微天平在金属腐蚀研究中的应用

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摘要:

简要介绍了石英晶体微天平(Quartz Crystal Microbalance, 简称QCM)技术的基本原理,综述了QCM在金属大气腐蚀、阳极溶解、钝化、局部腐蚀以及缓蚀剂缓蚀行为和机理研究等方面的应用及其进展,讨论了QCM用于金属腐蚀研究的优点和局限性.

关键词: 石英晶体微天平(QCM) 腐蚀 钝化 缓蚀剂

REVIEW ON THE APPLICATION OF QUARTZ CRYSTAL MICROBALANCE IN THE RESEARCH OF METAL CORROSION

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Abstract:

Quartz Crystal Microbalance (QCM), a nanogram mass detector, is very suitable to perform in situ monitor on the corrosion process of metals. In this paper, principle and method of QCM technique was briefly introduced, its advantages and disadvantages in corrosion study were also discussed. Furthermore, the application and advancement of QCM in metal corrosion research, e.g. atmospheric corrosion, anodic dissolution, passivation, localized corrosion, the behavior and mechanism of inhibitors were summarized. The advantages that using QCM to take minute measurement of atmospheric corrosion, the kinetic study of dissolution and passivation of metals and filming of corrosion inhibitors were emphasized.

Keywords: quartz crystal microbalance (QCM) corrosion passivation inhibitor

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