

论文

含菌介质中MDOPD对SRB菌及生物膜腐蚀的抑制作用

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摘要:

用动电位扫描极化曲线、原子力显微镜和电子探针等方法研究了SRB生物膜在培养基介质中对于含咪唑杂环的双季铵盐化合物MDOPD的敏感性。结果表明:含菌介质中,MDOPD吸附在电极表面,形成完整致密的有机保护膜,对电极的腐蚀反应具有良好的抑制作用,SRB的代谢及腐蚀产物也难以在电极表面直接吸附和沉积,从而降低了SRB生长代谢的次生过程(包括酸浸蚀等)对腐蚀的促进作用;同时也降低了介质中的SRB参与碳钢腐蚀的机会。

关键词: 双季铵盐 原子力显微镜 生物膜 硫酸盐还原

Effect of MDOPD on Biofilm Property in Culture Medium Inoculated SRB

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Abstract:

Electrochemical polarization curves, Atom Force Spectroscopy and Electronic Probe Measurement Analysis were used to study the sensitivity of biofilm on Q235 steel to MDOPD in the culture medium inoculated sulfide-reducing bacteria (SRB). The experiment results show that surface status of Q235 steel electrode and corrosion reaction facilitated by SRB were decreased greatly owing to the adsorptive film of MDOPD. It is difficult for metabolized product of SRB in medium and corrosion production to deposit directly on carbon steel surface, then the acceleration effect of SRB medium and course including acid soak to corrosion was reduced markedly. At the same time, it is hardly possible for SRB in medium to metabolize on carbon steel surface and this would decrease the possibility for SRB to assist corrosion in the medium.

Keywords: Bisquats Dynamic polarization curves Biofilm SRB

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