

论文

船用钢的薄层液膜下腐蚀监测与防蚀研究

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摘要:

模拟907A钢在海水的饱和湿气环境中表面形成薄层液膜状态下的腐蚀,利用恒电量腐蚀速率测量仪连接ACM探头,监测其腐蚀状态,结合电化学阻抗谱(EIS)的测量,探讨907A钢在薄层液膜下的腐蚀机理,同时对薄层缓蚀剂液膜防蚀效果作了快速评定.结果表明:907A钢在海水可见薄层液膜下腐蚀反应比完全浸泡在海水中的腐蚀剧烈得多,虽然薄层缓蚀剂液膜对907A钢的缓蚀效率与全浸在缓蚀剂溶液中相比有一定差距,但相对于薄层海水液膜下的907A钢的腐蚀,薄层缓蚀剂液膜防蚀作用仍然是明显的.

关键词: 恒电量 腐蚀 907A钢 监测

CORROSION MONITORING OF SHIP BUILDING STEEL BENEATH THIN SEAWATER FILMS

Abstract:

By the coulometric perturbation meter and atmospheric corrosion monitor (ACM) as on-line measurement system, the corrosion behavior of 907A steel, beneath thin seawater films was simulated in a corrosion set, and the anti-corrosion effect of the corrosion inhibitor (a mixture of polyhydric alcohol phosphate ester, phosphate and polyphosphate) applied to 907A steel was also evaluated quickly. The results showed that a badly corrosion reaction were occurred on 907A steel beneath thin seawater films covering its surface, which were much more acute than the steel immersed in seawater. Therefore, the corrosion study and the protection techniques are urgent to the empty period of the inner room of ship, such as the ballast tank, engine room, boiler cabin, et al. Though 907A steel which immersed in seawater with the inhibitor was superior over that beneath inhibitor layers, the anti-corrosion effect of the thin inhibitor layers applied to 907A steel was still efficient.

Keywords: coulometric corrosion 907A steel monitoring

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