

论文

UNS S32304双相不锈钢等离子弧焊接头的组织及其耐点蚀性能

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**摘要:** 采用恒电位临界点蚀温度(CPT)法, 利用OM, SEM, EDX和恒电位极化技术等研究了等离子弧焊接对双相不锈钢UNS S32304焊接接头微观组织及其耐点蚀性能的影响. 结果表明, 焊接接头热影响区和熔合区微观组织较母材相比发生了显著变化, 两相比例严重失衡, 铁素体所占比例均大于70%; 两区域微观组织形态发生明显变化, 且在铁素体晶粒内及两相相界处析出大量氮化物; 焊接接头的耐点蚀性能明显下降, 点蚀优先发生在高温热影响区所在的铁素体晶粒内.

**关键词:** 双相不锈钢 等离子弧焊 微观组织 点蚀

MICROSTURE AND PITTING CORROSION RESISTANCE OF UNS S32304 DUPLEX STAINLESS STEELS WELDED JOINT WITH PLASMA-ARC WELDING

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**Abstract:** Microstructure and pitting corrosion resistance of UNS S32304 duplex stainless steels welded joint with plasma-arc welding (PAW) were studied by means of OM, SEM, energy dispersive X-ray spectroscopy (EDX) and potentiostatic electrochemical technique. The results show that the microstructures of the heat-affected zone (HAZ) and fusion zone differ from the base metal greatly, with ferrite fraction greater than 70%. Furthermore, a lot of nitrides are precipitated at the interface between ferrite and austenite phases and inside the ferrite grains. Consequently, pitting corrosion resistance of the welded joint declines obviously and pitting preferentially occurs at ferrite phase in the high temperature HAZ near the fusion line.

**Keywords:** duplex stainless steel plasma-arc welding microstructure pitting corrosion

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