

### 论文摘要

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## QA19-2合金脱铝腐蚀的TEM研究

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**摘要:** 针对QA19-2合金在海洋环境中亚稳 $\beta_1$ 相优先脱铝腐蚀的问题, 利用TEM, EDX以及XRD分析, 对其发生脱铝和未发生脱铝的区域进行了细致的研究。结果表明, QA19-2合金的脱铝腐蚀与亚稳 $\beta_1$ 相的马氏体相变有关, 腐蚀优先发生在相变产物片状 $\beta_1'$ 相区,  $\beta_1'$ 马氏体相的优先腐蚀是由有序的 $DO_3$ 结构及其内部存在的大量层错造成的。同时在TEM下观察到脱铝腐蚀形成的小孔及高含铝量的细小腐蚀产物。

**关键字:** 铜合金; 脱铝腐蚀; TEM

## TEM observation on dealuminification corrosion of QA19-2 alloy in marine environment

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**Abstract:** In view of preferential dealuminification corrosion of metastable  $\beta_1$  phase, QA19-2 alloy before and after dealuminification in marine environment was studied by TEM, EDX and XRD analysis. It was indicated that the dealuminification corrosion of QA19-2 alloy is associated with martensite transformation of metastable  $\beta_1$  phase, and occurs within the transformation products,  $\beta_1'$  martensite plates. The reason is that there are  $DO_3$  structure and a large amount of stacking faults in the  $\beta_1'$  martensite plates. Micro-pits and aluminum-rich fine corrosion products were also observed by TEM.

**Key words:** copper alloy; dealuminification corrosion; TEM

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