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An assessment of pitting corrosion in anodized aluminum alloys: it might not be what it seems

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Resumo:

In this study, special attention was given to the characterization of pits on the anodized aluminum alloy (Al-Zn-Mg-Cu) with an anodic aluminum oxide formed in tartaric sulfuric acid. Anodic polarization in 0.1 mol L⁻¹ NaCl solution was used to initiate pitting corrosion in the anodized alloy. Pit characteristics, such as morphology and depth, were evaluated by using optical microscopy, optical profilometry and scanning electron microscopy. The methodology adopted in this study revealed severe under-film pitting due to highly occluded conditions and showed that the extent of the under-film pitting is significantly greater than the size of pit mouth observed from the surface.