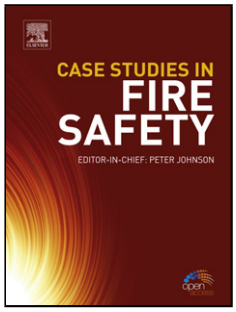

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Effect of surface abrasion on pitting corrosion of Al-Li alloy

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Highlights

- Statistical analysis was used to study the evolution of microstructure and pits.
- With the increase of grit number, more intermetallic particles were dissolved.
- Frequency of pits (metastable and stable) decreased with grit number increasing.
- Effect of intermetallic particles on pitting is bigger than that of surface roughness.

Abstract

The effects of surface abrasion on microstructure and pitting corrosion of 2297 Al-Li alloy were investigated. Statistical analysis reveals that surface abrasion alters surface roughness and induces partial dissolution of intermetallic particles. A smoother surface finish reduces the population density and the average size of AlCuMnFe particles, due to enhanced dissolution of AlCuMnFe particles. All abraded samples undergo pitting corrosion, and surface layer dissolution (except pitting) is not observed. Smoother