

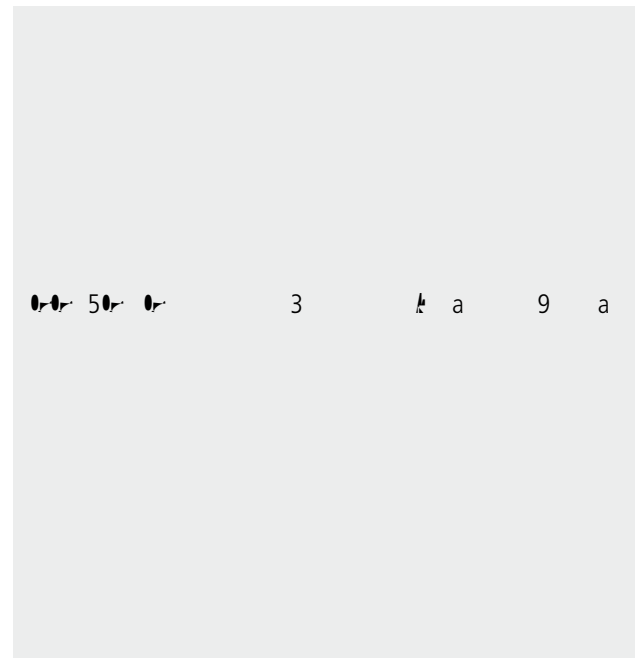
Corrosion phenomena on aluminium alloys spontaneously mitigated in natural seawater

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Aluminium alloys are widely used in marine environments due to their high strength-to-weight ratio and good corrosion resistance. However, in natural seawater, aluminium alloys can undergo spontaneous corrosion phenomena, which are often mitigated over time. This paper discusses the mechanisms of spontaneous corrosion and its mitigation in natural seawater, focusing on the role of the natural oxide film and the formation of protective layers. The study involves electrochemical measurements and microscopy techniques to analyze the corrosion products and the evolution of the surface film. The results show that the corrosion rate decreases significantly over time, indicating a self-protective mechanism. This phenomenon is attributed to the formation of a more stable and protective oxide layer on the alloy surface, which reduces the anodic dissolution rate. The study highlights the importance of understanding the natural corrosion processes in marine environments to optimize the design and maintenance of aluminium alloy structures.

INTRODUCTION

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a ma a

RESULTS

a a a 95% al al a a am l mm a al a
m a 95% a a 3 a a al m a mm
am l l mm a l l a am l

Fig. 3



DISCUSSION

l a m a am l m 3 a la l lla a 8
a al a a a l l a ma a a a al a 83
a a a a a a a al
ma l a al l a a 9
al a l a a a al a a a a a
a m a a a al 8
8 ± 5 m l
a am l mm a al a a
a l m a al a
8 m l m
a mm l a 8 m
l la a m a a
a a k a a
ma
a am l mm a al a a
a a l m 3 a
a l a 8 m l

