Initial NaCl-induced atmospheric corrosion of a dual-phase Cu60-40Zn alloy - Effect of UV illumination

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doi: 10.20964/2018.08.71

Received: 25 March 2018 / Accepted: 22 May 2018 / Published: 5 July 2018

In this paper, the effect of ultraviolet (UV) illumination on the NaCl-induced atmospheric corrosion of a Cu60-40Zn alloy was investigated. UV illumination affects the atmospheric corrosion of the Cu60-40Zn alloy in terms of corrosion rate, corrosion morphology and corrosion products. The NaCl-induced atmospheric corrosion rate of the Cu60-40Zn alloy increases under UV illumination due to the increase of the corrosion initiation sites and the photovoltaic effect of the corrosion products. The increased photoinduced potential and the transfer of the photogenerated electrons from the substrate Cu-Zn alloy to the corrosion products provide evidence for the accelerated anodic reactions under light illumination, and thus promote the atmospheric corrosion of the Cu60-40Zn alloy under UV illumination.

Keywords: Cu-Zn alloy; atmospheric corrosion; UV illumination; NaCl particles; XPS

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