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Short Communication

Effect of Annealing Temperature on Microstructure and Corrosion Behavior of CoCrNi Medium-entropy Alloy in 3.5 wt.% NaCl Solution

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This work investigates the effect of annealing temperature on corrosion performance of CoCrNi medium-entropy alloy (MEA) in 3.5 wt.% NaCl solution. The corrosion property of CoCrNi MEA improves with the increase of annealing temperature. The corrosion behavior of the annealed MEA is associated with grain size and passive film. The difference in electrochemical activity between substrate and oxide inclusion is the main cause of micro-galvanic corrosion, which facilitates the dissolution of matrix and induces the formation of pits. The matrix (anode) and oxide inclusion (cathode) both experience the selective dissolution of Co, except that oxide also undergoes the marked dissolution of Ni.

Keyword: Medium-entropy alloy, Corrosion, Microstructure, Annealing treatment

FULL TEXT