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Comparative study of Anomalous Codeposition of Ni-Zn in different Acid Solutions

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Abstract

The reaction kinetic of Zn-Ni codéposition was investigated indifferent acid solutions .The effects of acid solutions was analyzed. For all the solutions, the inhibition of H^+ reduction occurs with increasing Zn ions concentration in solution. In all the case increasing pH values causes Zn deposition during Ni-Zn codeposition. Anomalous codeposition is favored in chloride medium and inhibited in boric acid. When alloy deposition becomes the main process, the interfacial pH is governed by the individual metal deposition that controls the kinetic behavior. The interfacial pH increases during separate Ni deposition, meaning that it occurs with simultaneous consumption of H^+. Anomalous codeposition process is not due to a saturation of species at the electrode surface.