

عنوان مقاله:

Addition of Mo in the Zn based alloy coating in the citrate solution and investigation of its corrosion behavior

محل انتشار:

فصلنامه مواد پیشرفته و فرآوری، دوره 7، شماره 1 (سال: 1398)

تعداد صفحات اصل مقاله: 7

نویسندگان:

Mahdi Omid - *Advanced Materials Research Center, Department of Materials Engineering, Najafabad Branch, Islamic Azad University, Najafabad, Iran*

Mahdi Yeganeh - *Department of Materials Science and Engineering, Faculty of Engineering, Shahid Chamran University of Ahvaz, Ahvaz, Iran*

Arash Etemad - *Master of Science Student, Nanomaterial Engineering, Isfahan University, Isfahan, Iran*

Mohammad Reza Rostami - *Master of Science Student, Nano Materials Engineering, University of Science and Technology, Tehran, Iran*

Mohammad esmaeil Shafie - *Bachelor of Science, Advanced Materials Research Center, Department of Materials Engineering, Najafabad Branch, Islamic Azad University, Najafabad, Iran*

خلاصه مقاله:

In this work, Zn-Co-Mo coatings were electrodeposited on mild steel substrate from a citrate solution at current densities of ۵, ۷.۵ and ۱۰ mA.cm^{-۲} and pH values of ۴.۵, ۵, and ۵.۵. The coated samples were studied by scanning electron microscope and potentiodynamic polarization. The corrosion behavior of the coatings was related to the molybdenum content and formation of local anodes and cathodes. According to the results, a distinct range of current and pH was recognized to provide high quality and corrosion resistant coatings. The percentage of molybdenum as an alloying element plays an important role in the improvement of the corrosion properties of the coating. The formed coating at pH of ۵.۵ with ۱۳ wt. % Mo showed the lowest corrosion current density with a value of ۰.۵ μA.cm^{-۲}. The molybdenum coating also showed a passive-like behavior in the anodic region due to the presence of molybdenum in the coating composition.

کلمات کلیدی:

Zn-Co-Mo alloy, electrodeposition, Corrosion

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/1247726>



