عنوان مقاله:

An investigation on Al۶۰۶۱/TiB۲ nano composites production through Mechanical Alloying route and their corrosion behavior

محل انتشار:

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خلاصه مقاله:

Aluminum-based alloy composites with high strength and low density can be used in corrosive environments. In this research, the nano-powders of A۱۶۰۶۱ alloy and A۱۶۰۶۱/TiB۲ composite were synthesized by mechanical alloying (MA) method. Then, A۱۶۰۶۱ /TiB۲ nano-composite bulk samples were prepared at laboratory scale by hot extrusion approach. Transmission electron microscopy (TEM) and X-ray diffraction (XRD) devices were respectively used for measurement of particles and grains, and the polarization test was employed to assess the corrosion behavior of A۱۶۰۶۱ /TiB۲ nano-composites. The grains size of hot extrusion samples were calculated as about ۹۵ nm. Uniform corrosion behavior and pitting of the produced nano samples of MA۶۰۶۱ /۱.۲۵ TiB۲ have higher corrosion resistance compared to the alloy samples of MA۶۰۶۱.۳. The uniform corrosion in the ۲MA-Al-۶۰۶۱/۱.۲۵TiB۲ composite had the lowest rate compared to other samples.The sensitivity of this alloy to pitting corrosion has raised compared to the melting state; however, this sensitivity is less than the alloy made by mechanical alloying method.

کلمات کلیدی:

A۱۶۰۶۱ nano-composite alloy, Nanocomposite, Mechanical alloying, Hot extrusion process, Corrosion

لینک ثابت مقاله در پایگاه سیویلیکا: