Title: The Effect of Electromagnetic stirring on Microstructure and properties of γ-TiAl based Alloys Fabricated by Selective Laser Melting Technique

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The γ-TiAl based Ti-Al-Mn-Nb alloys were fabricated by selective laser melting (SLM*)* on the TC4 substrate. The microstructures of the alloys were investigated in detail. The results reveal that the alloy without EMS consist of γ-TiAl phase with tetragonal structure and α_2-Ti_3Al phase with hcp structure, while the alloy with applied electromagnetic stirring (EMS) consist of γ-TiAl, α_2-Ti_3Al and α-Ti with hcp structure, and the morphological structure of the alloy without EMS which exhibit near lamellar structure and the alloy with EMS shows duplex structure. The alloy without EMS show higher microhardness and wear resistance, while the values decrease with applied EMS.

Biography

The author holds the Bachelor of Science in materials processing from college of applied and industrial science, University of Juba, Khartoum, Sudan. And a master of engineering in materials processing engineering, school of materials science and engineering, Dalian University of Technology, Dalian, China. The author focus in structural materials specially the light metals (Ti and Ti alloys), and published 3 papers in γ-TiAl based Alloys, and attended 1 conference in light science and applications, Changchun, China.

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