Macro-interface Characteristics of Bimodal-structured Al Materials Produced by Ball-milling

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Abstract

Al-5wt%Mg powders mixture, Al-5wt%Mg/SiCp mixture and Al-5wt%Mg/SiCp mixture were prepared by ball-milling for 30 h at the ratio of ball and powder, 30:1, and subsequent compacting under a pressure of 350MPa. The bimodal-structured materials were obtained by bonding the Al-5wt%Mg powders mixture and composite mixtures using heat treatment at temperatures ranging from 973K to 1173K for 5h. The macro-interface characteristics in the bimodal-structured Al materials were evaluated based on not only elastic modulus and hardness by nano-indention test but also fracture toughness and bending strength by impact test and bending test.