

عنوان مقاله:

Investigation of Microstructure and Mechanical Properties of Al/nano-Al₂O₃ Composites Fabricated by ARB Process

محل انتشار:

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نویسندگان:

s Biabangard Barani - *Department of Materials Science and Engineering, Faculty of Engineering, Ferdowsi University of Mashhad P.O. Box 91775-1111, Mashhad, Iran*

s.a Sajjadi - *Department of Materials Science and Engineering, Faculty of Engineering, Ferdowsi University of Mashhad P.O. Box 91775-1111, Mashhad, Iran*

خلاصه مقاله:

In the current study the accumulative roll bonding (ARB) process was used for manufacturing Al/nanoAl₂O₃ composites. For this purpose Al 1050 powder was first milled with nano Al₂O₃ particles to produce nano composite powders. The powders were added between two Al strip and ARB process was applied to produce Al/nanoAl₂O₃ composite. The process was repeated up to nine passes. The resulting microstructures and the corresponding mechanical properties of composites after different passes of ARB process were studied by optical and electron microscopy, hardness and tensile tests. The produced MMC by nine ARB cycles showed a homogeneous distribution of nano particles in the aluminum matrix. Moreover, when the number of ARB cycles was increased, up to the cycle five, the tensile strength of composite strips was decreased and then by increasing the number of cycles, the tensile strength of composite strips was increased

کلمات کلیدی:

Accumulative roll bonding, nano-composite, microstructure, hardness, tensile strength

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