

عنوان مقاله:

FLOWBEHAVIOIROFAL MATRX COMPOSITE RENFORCEDBYIRON BASED (20% CR-30%ND WIRES DURING
EQUAL CHANNEL ANGULAR PRESSING

محل انتشار:

سومین کنفرانس بین المللی مواد فوق ریزدانه و نانوساختار (سال: 1390)

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خلاصه مقاله:

Equal channel angular pressing (ECAP) is currently being investigated because of its potential to produce ultra-fine grained microstructures in metallic alloys with potential of industrial implementation. In this work a novel research was carried out to study deformation behavior of Al matrix composite by ECAP processing, reinforced by longitudinal iron based (20% Cr-30%Ni) wires. In addition, the composite provides a very good opportunity to characterize flow pattern of ECAP in route A. Although the macrostructural flow pattern of the deformed composite and CP Al show similarity, their microstructural flow patterns are different. As a result of interaction of the matrix with the wires during deformation, materials perturbation was appeared in the microstructure along with the some areas including intensive shear bands adjacent to the wires. The results show, the presence of high strengths wires in the Al matrix not only improve homogeneity of the strain throughout the specimen even in the dead zone, but also promote higher grain refinement within the matrix enhances mechanical properties.

کلمات کلیدی:

Al-wire composite; ECAP; flow behavior; ultra fine structure

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