

عنوان مقاله:

Application of Arrhenius-type constitutive equation for modeling of bulk metal forming processes

محل انتشار:

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خلاصه مقاله:

In the present research, the ring compression test was utilized for evaluating the flow behavior of AZ80 magnesium alloy under three different temperatures and deformation rates. The parameters of Arrhenius type (Zener-Holloman-dependent) constitutive model for this alloy were determined using the results of the ring compression tests together with an optimization approach by employing Genetic Algorithm. As a case study, the non-equal channel lateral extrusion (NECLE) process was simulated using the determined parameters of the of Arrhenius type material model. Finally the load-displacement curve of the FE simulation was compared with the experimental load curve. A good agreement was observed between these curves.

کلمات کلیدی:

Arrhenius-type constitutive model, Non-equal channel lateral extrusion; Ring compression test; Finite element

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