Poster Session | F. From Microstructure to Properties: Mechanisms, Microstructure, Manufacturing

[PO-F1]Poster Session 1

Symposium F

Mon. Oct 29, 2018 5:45 PM - 8:00 PM Poster Hall

[P1-42]Simulation of Extrusion Process of TiAl alloy prepared by Triple VAR

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TiAl alloy with low density and excellent mechanical properties at the high temperature is one of the most potential materials in aerospace industry, however the extrusion of the ingot with industrial scale is difficult due to the poor ductility. In this study, FEM was employed to describe the extrusion plastic deformation behavior of this alloy which prepared by triple VAR. Under various extrusion conditions, the strain distribution and the extrusion load were studied by numerical analysis. The influence of the die angle and the extrusion ratio were examined. The results showed that the peak extrusion force was enhanced with the increased die angle with a certain slop coefficient. The die angle with 100° was suggested to obtain the uniform deformation. With the raising of extrusion ratio, the effective strain, extrusion load in billet would be increased. Then extrusion experiment of triple VAR TiAl ingot was carried out successfully with extrusion ratio of 10.