

عنوان مقاله:

Effect of processing parameters on the morphology of α -phase in Ti-6Al-4V alloy during the two-step hot deformation

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خلاصه مقاله:

The morphology of the α -phase in titanium alloys considerably affected their physical and mechanical properties. In this research, the effect of applied strain and inter-pass times on the morphology of the α -phase was studied in the two-step hot deformation process. Hot compression tests were performed at $900 \text{ }^\circ\text{C}$ and 0.001 s^{-1} while the strains in the first and second passes were set as (first cycle: 0.6 and 0.3) and (second cycle: 0.3 and 0.6) respectively, with various inter-pass times. The work softening parameter obtained from the stress-strain curves showed that the proper time for globularization of α -layers for the first pass strain of 0.6 was 240 s and for the second strain of 0.3 it was 240 and 300 s . Microstructure results indicated that the first pass strain of 0.3 and the inter-pass time of 240 s were the optimum conditions for globularization of α layers.

کلمات کلیدی:

Ti-6Al-4V alloy, Two-step hot deformation process, Microstructure

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