عنوان مقاله:

MODELING THE HOT DEFORMATION FLOW CURVES OF API X۶۵ PIPELINE STEEL USING THE POWER LAW EQUATION

نویسنده:

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خلاصه مقاله:

Till now, different constitutive models have been applied to model the hot deformation flow curves of different materials. In this research, the hot deformation flow stress of API X۶۵ pipeline steel was modeled using the power law equation with strain dependent constants. The results was compared with the results of the other previously examined constitutive equations including the Arrhenius equation, the equation with the peak stress, peak strain and four constants and the equation developed based on a power function of Zener-Hollomon parameter and a third order polynomial function of strain power a constant number. Root mean square error (RMSE) criterion was used to assess the performance of the understudied models. It was observed that the power law equation with strain dependent constants has a better performance (lower RMSE) than that of the other understudied constitutive equations except for the equation with the peak stress, peak strain and four constants. The overall results can be used for the mathematical simulation of hot deformation processes

کلمات کلیدی:

Constitutive equations, Hot deformation processes, Power law equation, API X۶۵ pipeline steel.

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