SESSION 8: POSTER, GRAND PACIFIC BALLROOM
SUNDAY, OCTOBER 15, 2016

Constitutive equation of compression for 38MnV micro-alloyed Steel

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ABSTRACT

High-temperature compression test of 38MnV non-quenched and tempered steel was conducted on Gleeble-3500 machine in the temperature range of 850–1000°C and the strain rate range of 0.01–10 s^{-1}, the flow stress curves were studied in this paper. The variation of material contents with different strain values were studied and constitutive equation was built according to an Arrhenius type equation. The dynamic recovery and recrystallization processes during hot compression were studied on the basis of stress–strain curves.

KEYWORDS: 38MnV steel, constitutive equation, dynamic recovery, dynamic recrystallization