recovery, primary recrystallization, and grain growth. Compared with texture development in continuous annealing process, some γ fiber texture components change obviously in recovery while they hardly change in this stage during CA and the evolution of γ fiber texture is more complex in primary recrystallization. After primary recrystallization, γ fiber texture continues to change with the progress of batch annealing.

(2) The deformed fibers in IF steel contain many subgrains that are less than 2 μm, and there always exists misorientation between subgrains. Large angle misorientations are much more in γ fibers than in other fibers, which makes nucleation easily take place in γ fibers and rarely in fibers with other orientations. Because of subgrain coalescence and grain consumption, the ratio of small angle misorientation decreases with the annealing process carried on.

(3) As for texture transformation during batch annealing, the orientation of new-formed nuclei inherits from their deformed matrix. In addition, γ fibers are preferably consumed first, and γ fibers especially {001}<110> are consumed in the end. Also, the results of EBSP consist with ODF analysis well.

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Effects of Suspension Casting on Solidification Process of GCr15 Steel Ingot

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Abstract: The mechanism of inoculation in the case of suspension casting process has been studied through solidification kinetics. The effect of suspension casting process on temperature field, solidification rate, temperature gap of crystallization, effective distribution coefficient of solute and nucleation frequency during solidification process in steel ingot were discussed on the base of experiments. It has been found that the suspension casting process can increase both cooling rate and solidification rate of steel ingot, improve the temperature field and solute distribution, narrow the temperature gap of crystallication, and increase the nucleation frequency. Thus, the solidification time can be shorten, the solute can be well distributied, the shrinkage porosity can be reduced and the grain of crystallization can be fined

Key words: suspension cating process; solidification kinetics; solidification rate; GCr15 Steel

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