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Effect of brine solution on grain size formations in AISI 1080 low carbon steels

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Abstract

The authors studied the effect of brine solution on grain size formations in AISI 1080 low carbon steels. The concentrations of brine solutions were 3.5,5.5 and 8.0mol/dm^3 under conditions of constant bath temperature. The growth, formation and distribution of grains in the microstructure were analysed using fractal analysis.They found that an increase in brine concentration increases the brine growth and distribution of brine sizes.Incresing in brine concentration reduces the fractal dimension of the steel from obtaining perfect shape and size. Their experimental work consisted of preparing test specimens with dimensions 80mm long,50width and0.5mm thickness.The specimens were heated to 900^{0}c and were kept at that temperature for two hours .Then the samples were quenched in brine solution and allowed to cool for 30minutes.