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Experimental studies on the influence of quenching and partitioning temperatures variation on retained austenite fraction in AISI 4140 steel

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Abstract

The authors made experimental studies on the influence of quenching and partitioning temperatures variation on retained austenite fraction in AISI 4140 steel. Quenching partitioning is a recently developed heat treatment method which offers enriched carbon in retained austenite at room temperature. This method has four stages namely austenizing, premier quenching partitioning and secondary quenching after words the specimens were etched and observed under microscope for X-ray diffraction to obtaine the microstructure. The amount of retained austenite affected by premier quenching temperature and partition temperature was examined.Using this experimental data,the possible improvement on the mechanical properties can be examined.