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## Investigating the effect of cooling rate on mechanical properties of carbon steels

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### Abstract

The authors have worked on investigating the effect of cooling rate on mechanical properties of carbon steels (St 35). The various mechanical properties investigated by them are tensile strength, shear strength, toughness, impact and hardness. The microstructure was also studied before and after heat treatment by an optical microscope. According to them the microstructure is changed and a significant improvement in the mechanical properties of carbon steels were observed by varying the cooling rate. Improvement of one property will affect the other properties because of their inter relationships. In water media tensile, torsion and hardness improved while impact stress reduced. Air media contributed in improving most of the mechanical properties because of grain size homogeneity. At furnace media ductility and impact strength improved. Their experimental procedure consisted of material selection, preparation of test specimens, sorting out specimens, listing of various tests to be conducted and arriving at conclusions.