

Effect of Carbon Content on the Mechanical Properties of Medium Carbon Steels

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The mechanical properties of medium-carbon steels with a carbon content ranging from 0.30 to 0.55 wt.% were investigated by tensile and microhardness tests at room temperature. It was observed that the higher carbon content results in an increase in yield stress and ultimate tensile stress, while the elongation remains essentially constant. The results were explained by the hindering of dislocation motion associated with solid solution hardening.

Key words: Medium Carbon Steel; Yield Stress; Ultimate Tensile Stress; Elongation; Solid Solution Hardening.