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## Effect of carbon content (0.61 to 0.99 wt.%) on bainite transformation kinetics, structure and tempering resistance in low alloy steel

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The bainite microstructure, transformation kinetics and tempering resistance have been studied as a function of carbon content from 0.61 to 0.99 wt. % in low alloy steels. The carbon content strongly affects the bainitic transformation kinetics and hardness which are both increased by increasing carbon content. The tempering resistance also varies depending on carbon content and a higher carbon content with an initially higher hardness also gives slightly improved tempering resistance for short tempering times. The main reason for the decrease in hardness during tempering is related to the decrease in dislocation density for all four steels investigated. The higher tempering resistance for higher carbon content steels appears to be partly related to a lower change of dislocation density during tempering.

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