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Study of the Tribological Properties of SAE 8620 Steel After laser treatment with carbon

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The objective of this work is to analyze the effects of laser surface treatment with carbon deposition on the tribological properties of SAE 8620 steel. This material is commonly used in gears due to its good machinability and easy workability, receiving surface treatment in order to obtain a ductile core, characteristic of the annealed material, and a hard surface through phase transformation, obtaining a material with greater fatigue properties and surface hardness. The process under study is the thermochemical treatment of laser with carbon deposition, in which carbon is added to the surface of the material, where the laser focuses, performing a kind of surface tempering, forming a hard layer about 20 um, with alteration of the miscrostructure and improvement of the surface properties of the sample, resulting in a reduction in worn volume by more than 30 times when the pin and/or the disk were/was treated thermally.