

## **The Influence of Laser Surface Heat Treatment on Mechanical Properties and Wear Resistance of High Carbon-Low Alloy Steel**

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### **Abstract**

**This research aims to study the influence of Laser surface heat treatment on mechanical properties and wear resistance of high carbon-low alloy steel. The specimens were hardened by using Nd: glass Laser at three different Laser energies. Wear behavior of the specimens as-received and specimens treated by laser were being studied by using pin-on-disc technique under dry sliding condition at different sliding speeds and different applied loads. This study shows that the wear rate increases by increasing values of applied load and decreases with increasing sliding velocity, and if the wear rate for Laser energy(0.94J) is less than another energies(0.32 , 0.60J). Also the results show that the micro hardness decreases by increasing hardening depth, and for micro hardness values for Laser energy (0.94J) more than another energies at the same depth.**

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**Keywords: laser surface treatment, mechanical properties, micro hardness, Wear behavior.**

For the abstract in Arabic see pages (201-215).

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