

Effect of Heat Treatment on the Structure, Wear and Corrosion of AISI L6 Tool Steel

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Abstract: This work is a contribution in analyzing structure, tribological behavior and corrosion of AISI L6 hardened tool steel. Structural characterization and tribological behavior of steel were investigated using Optical Microscopy (OM), Scanning electron microscopy (SEM), wear testing by friction on a pin-on-disc Tribometer and corrosion by potentiodynamic polarization. Comparing to the as-received steel, hardening has generated a fine martensitic microstructure causing a 1.5 times hardness increase. Hardening has contributed to improvement of wear resistance as the coefficient of friction has decreased from 0.86 to 0.67. An increase in corrosion resistance was observed after hardening treatment.

Keywords : tool steel, AISI L6, friction, hardening, corrosion, heat treatment, wear