Defect and Diffusion Forum

Volume 406, Issue 1, 2021, Pages 448-456

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

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

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