

Friction Behavior of Wood-Plastic Composites against Uncoated Cemented Carbide

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Abstract : The paper presents the results of the investigation of the dry sliding friction of wood-plastic composites (WPCs) against WC-Co cemented carbide. The dependence of the dynamic coefficient of friction on the main influencing factors (vertical load, temperature, and sliding distance) was investigated by evaluating their mutual interaction. Multiple regression analysis showed a high polynomial dependence (adjusted $R^2 > 0.98$). The resistance of the composite to thermo-mechanical effects determines how temperature and force factors affect the magnitude of the coefficient of friction. WPC-B composite has the lowest friction and highest resistance compared to WPC-A, while composite and cemented carbide materials wear the least. Energy dispersive spectroscopy (EDS), based on elemental composition, provided important insights into the friction process.

Keywords : friction, composite, carbide, factors

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