Friction and Wear Behaviors of Al/Epoxy Composites during Reciprocating Sliding Tests

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Aluminium is widely represented material in engineering - one of the possible forms of application is an Al powder, when mutual interaction mainly with polymer matrix creates new materials. In practice, the aluminium powder is commonly used together with a number of reaction resins, e.g. epoxy resins. Such systems can be described as liquid metals, and amongst other options of the application, they are used for quick renovation of the functional areas of machines. In such applications, particularly important are hardness and durability of the composite layer against wear. This paper experimentally evaluate the friction and wear of systems based on epoxy resin with aluminium powder (microparticles), through reciprocating sliding tribotests. Tribological outcomes evidenced a reduction of the friction coefficient when the resin is reinforced by alumium particles, with a concentration of 32% in term of volume fraction.

Keywords: Aluminium, composite, hardness, reactive resin, tribology.

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