

## Experimental Modelling Gear Contact with TE77 Energy Pulse Setup

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**Abstract :** The project was investigated tribological behavior of polyether ether ketone (PEEK1000) against PEEK1000 rolling sliding (non-conformal) configuration with slip ratio 83.3%, were tested applications using a TE77 wear mechanisms and friction coefficient test rig. Under marginal lubrication conditions and the absence of film thick conditions, load 100 N was used to simulate the torque in gears 7 N.m. The friction coefficient and wear mechanisms of PEEK were studied under reciprocating roll/slide conditions with water, ethylene glycol, silicone, and base oil. Tribological tests were conducted on a TE77 high-frequency tribometer, with a disc-on-plate slide/roll (the energy pulse criterion) configuration. An Alicona G5 optical 3D micro-coordinate measurement microscope was used to investigate the surface topography and wear mechanisms. The surface roughness had been a significant effect on the friction coefficient for the PEEK/PEEK the rolling sliding contact test ethylene glycol and on the wear mechanisms. When silicone, ethylene glycol, and oil were used as a lubricant, the steady state of friction coefficient was reached faster than the other lubricant. Results describe the effect of the film thick with slip ratio of 83.3% on the tribological performance.

**Keywords :** polymer, rolling- sliding, energy pulse, gear contact

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