

EFFECT OF COUNTER SURFACE ROUGHNESS AND CONTACT PRESSURE ON FRICTION AND WEAR OF POLYTETRAFLUOROETHYLENE (PTFE) AND ITS COMPOSITES

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Abstract

Polymers and polymer composites are steadily gaining ground over metals in the field of engineering applications in tribology. Laboratory wear tests were carried out under ambient temperatures with no lubricant at sliding velocity of 2.0 m/s and contact pressures of 0.2-0.45MPa and surface roughness of 1.42,1.52,1.77 μ m .The counter surface material is En8.The progress and developments in materials technology have resulted in several new materials. Polytetrafluoroethylene (PTFE) is one of them. The tribological properties of PTFE can be improved by adding some filler materials such as glass fiber, carbon, bronze, graphite etc. Friction and wear are very important surface phenomenon. The tribological studies were performed on the friction and wear behaviors of PTFE and it's composites under conditions of dry sliding. In this paper tribological behavior of PTFE + Glass Fiber composites is investigated by varying glass fiber concentration as 15%, 25%, and 35% as volume content. This paper describe the dependency of wear and friction on surface roughness, and contact pressure for PTFE and its composites. The wear rate and coefficient of friction are investigated by means of Pin-on-Disc (TR-20) Tribometer. The tests are carried out by varying load, and changing disc of different surface roughness. Various graphs are drawn for wear, coefficient of friction and specific wear rate as a function of time contact pressure and surface roughness

Keywords: PTFE, Glass Fibber, Pin-on-Disc (TR-20) Tribometer, wear, surface roughness, Specific wear rate.