Influence of ball burnishing on surface quality and tribological characteristics of polymers under dry sliding conditions

Abstract:

In this paper, the application of ball burnishing as a new surface treatment process for polymers is investigated. The polymers used were polyoxymethylene (POM) and polyurethane (PUR). The lowest surface roughness value achieved for POM was 0.44 μm (45% decrease) and for PUR was 0.46 μm (42% decrease). The lowest coefficient of friction value achieved was 0.22 (32.9% decrease) for POM and 0.24 (28.8% decrease) for PUR. The lowest specific wear rate value achieved was 0.31×10 -6 mm 3/N m (38.6% decrease) for POM and 0.41×10 -6 mm 3/N m (37.9% decrease) for PUR.