

Contact Temperature of Sliding Surfaces in AISI 316 Austenitic Stainless Steel During PIN on Disk Dry Wear Testing

Authors : Dler Abdullah Ahmed, Zozan Ahmed Mohammed

Abstract : This study looked into contact surface temperature during a pin-on-disk test. Friction and wear between sliding surfaces raised the temperature differential between the contact surface and ambient temperatures T_{diff} . T_{diff} was significantly influenced by wear test variables. T_{diff} rose with the increase of sliding speed and applied load while dropped with the increase in ambient temperature. The highest T_{diff} was 289°C during the tests at room temperature and 2.5 m/s sliding speed, while the minimum was only 24 °C during the tests at 400°C and 0.5 m/s. However, the maximum contact temperature T_{max} was found during tests conducted at high ambient temperatures. The T_{max} was estimated based on the theoretical equation. The comparison of experimental and theoretical T_{max} data revealed good agreement.

Keywords : pin on disk test, contact temperature, wear, sliding surface, friction, ambient temperature

Conference Title : ICAMAME 2024 : International Conference on Aerospace, Mechanical, Automotive and Materials Engineering

Conference Location : Hamburg, Germany

Conference Dates : August 08-09, 2024