EFFECT OF RELATIVE HUMIDITY ON ADHESION WEAR OF ALUMINUM-ALUMINA COMPOSITE MATERIALS

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ABSTRACT

In this investigation the effect of relative humidity on the adhesion wear of aluminum-alumina composite was analyzed. The wear experiments were carried out at different days of year, regarding to that the natural relative humidity changed from 30 to 100%. It has been found that the adhesion wear rate decreased as the relative humidity increased. At higher relative humidity more than 80% a visible third layer of oxide iron is generated which leads to prevent metal-on-metal contact. It was found that the friction coefficient drops more than 60% at a higher relative of humidity. Also, in this investigation it has been found that as the volume fraction of alumina increased the wear rate decreased.

KEYWORDS: Dry Sliding Wear, Relative Humidity, Composite Materials, Adhesion Wear