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NUCLEATION AND FORMATION OF OXIDE FILM UNDER A MAGNETIC FIELD

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Abstract : Nucleation and formation of an oxide film in contact with sliding unidirectional dry were studied in a vacuum chamber with and without the application of a magnetic field to identify the role of the intensity of magnetic field on the oxidation wear. The wear tests of AISI 1045 steel / steel AISI 1045 Were are carried in a tribometer pin on disc in three different gas environments: In ambient air, in oxygen at 105Pa and under vacuum at 5.10^{-5} Pa. The formation of the oxide film depends strongly on the partial pressure of oxygen and the intensity of the magnetic field. After de delimitation of the first wear debris, these wear debris compacted to form the oxide film.

Keywords : friction, wear, Oxidation, environment gas