World Academy of Science, Engineering and Technology
International Journal of Mechanical and Industrial Engineering
Vol:8, No:11, 2014

Tribological Behavior of EP Additives with Different Percentage of Sulfur

Authors : Salete Martins Alves, José Josemar de Oliveira Junior

Abstract : The current efforts on design of lubricants are based in attending the new requirement of modern equipment with the focus on the choice of base oil and additives. Nowadays, there are different types of lubricant oils' bases, such as mineral oils, synthetic oils, re-refined oils and vegetable oils. The lubrication in the boundary condition is controlled mainly by EP additives that interact with the surface forming very thin films. Therefore, the study's goal is to evaluate the action of three EP additives, with different percentage of sulfur, on friction and wear reduction. They were evaluated in mineral and synthetic oils. Lubricants were prepared with synthetic and mineral oils and added 3 % and 5 % of EP additives. The friction and wear characteristics were studied using HFRR test. In this test, a normal load of 10 N was applied at a frequency of 20 Hz. The analysis of results has appointed that the percentage of sulfur in mineral oil has influenced on wear reduction. However, synthetic oil had good performance with low sulfur content.

Keywords : boundary lubrication, EP additives, sulfur, wear
Conference Title : ICTIE 2014 : International Conference on Tribology and Interface Engineering
Conference Location : Venice, Italy
Conference Dates : November 13-14, 2014