**ABSTRACT**

Nanoscale additives has received significant importance as anti-wear additives by minimizing the wear and material surface destruction of machines induced by friction between the moving parts. The friction and wear are the two essential factors that are inevitable during the manufacturing process. In this work, an attempt is made to enhance the tribological properties of industrial oil by blending the nanoparticles of Fe2O3 with pearlite. The study is carried out with two different compositions of nanoparticles in aluminum and steel using pin-on-disc wear tester. The experimental outcomes demonstrate the existence of nanoparticles enhances the wear resistance in the base lubricant.