

عنوان مقاله:

Preparation of Novel Composite as Lubricant Additive for Tribological Properties

محل انتشار:

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خلاصه مقاله:

There have been demands for effective lubricants as well as additives for reducing friction and wear in various applications. In the past few decades, different nanostructures have been widely investigated as lubricant additives. Herein, to achieve the synergetic advantage of magnetic nanoparticle, conducting polymer and clay, a novel composite is developed by using magnetite (Fe_3O_4) and polyaniline (PANI) in the presence of montmorillonite (MMT). The prominent features of this additive are its anti-corrosion, anti-wear, chemical stability, environmental compatibility, moisture absorption, conductivity, and magnetic properties. The synthesized composite was characterized by FTIR, XRD, electrical conductivity and magnetic properties. The tribological properties of the as-prepared composites were evaluated, and the results showed that the MMT- Fe_3O_4 -PANI composite as oil-additive has excellent anti-wear and friction-reducing abilities. The low shearing resistance between clay layers, and the possible ball bearing effect of Fe_3O_4 -PANI contributed to the remarkable tribological behaviors of the lubricant.

کلمات کلیدی:

Composite, Lubricant, Tribological properties

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