Deagglomeration and tribological properties of MoS2/ hydroxypropyl methylcellulose composite thin film

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Deagglomeration and tribological properties of MoS_2/Hydroxypropyl methylcellulose composite thin film

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Abstract

This study analyzed the properties of MoS_2 and HPMC as a green tribological film. An additive-reinforced biopolymer composite film with good substrate coverage was obtained using highly viscous HPMC polymers as the base material of the composite material, which simultaneously provides tribological properties and acts as a dispersant that evenly disperses the additive (MoS_2 particles). The results of surface morphology observations, EDS mapping, and Raman analysis demonstrated the uniform dispersion of MoS_2 particles within the composite film. Optimal tribological performance can be obtained when the MoS_2 particles have good coverage and are evenly dispersed.

Keyword: Deagglomeration; tribology; MoS_2; HPMC; lubricant; biopolymer; composite