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Synthesis and wear behavior of oleic acid capped calcium borate/graphene oxide composites

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Abstract

In this paper, a series of calcium borate/graphene oxide (CB/GO) composites were synthesized using borax, calcium nitrate and graphene oxide by hydrothermal method. The composites were characterized by means of Fourier transform-infrared spectroscopy (FT-IR), Raman, transmission electron microscopy (TEM), field-emission scanning electron microscopy (FE-SEM), thermogravimetric analysis (TGA) and X-ray diffraction (XRD). The friction and wear properties of oleic acid (OA) modified CB/GO composites were also investigated using four-ball wear tester. Our results showed that the friction and wear properties were improved by forming an interfacial boundary lubrication layer.

Key words: Calcium borate/graphene oxide composites; Wear; TEM

Introduction

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