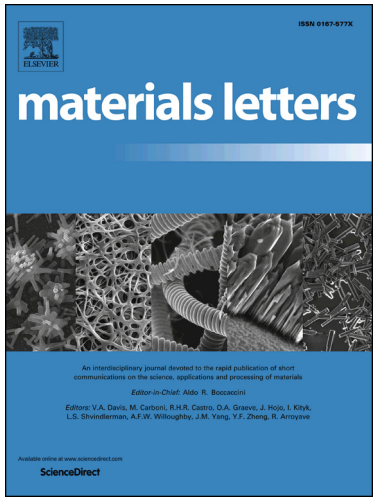

Template-free hydrothermal synthesis of 3D flower-like hollow Mg-Al layered double hydroxides microspheres for high-performance optical diffusers

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Template-free hydrothermal synthesis of 3D flower-like hollow Mg-Al layered double hydroxides microspheres for high-performance optical diffusers

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Abstract

A facile template-free hydrothermal method was proposed to synthesize 3D flower-like hollow Mg-Al layered double hydroxides (LDHs) microspheres. The structure and morphology characterization revealed that 3D flower-like hollow Mg-Al LDHs microspheres with a diameter of about 2.5 μm were assembled with numerous nanosheets. Interestingly, based on the optical diffusing test, 3D flower-like hollow Mg-Al LDHs microspheres exhibited suitable light transmittance, good diffusion capacity, and low incident angle dependence as light scattering materials for optical diffusers. Moreover, the possible light scattering mechanism was discussed and illustrated for the first time. Therefore, the results achieved in this study may provide valuable insights into the development of light scattering materials for high-performance optical diffusers.

Keywords: Microstructure; Light scattering materials; Multifunction; Thin films

1. Introduction

Over the past decades, optical diffusers have received considerable attraction

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