

Investigation of the optical properties of Mg(OH)₂ and MgO nanostructures obtained by microwave-assisted methods

Abstract

Two simple methods for the synthesis of Mg(OH)₂ nanostructures, MgO nanoflakes and MgO/Mg(OH)₂ nanocomposite using a conventional microwave oven are reported. The first method includes the preparation of Mg(OH)₂ by a simple reaction of magnesium powder with deionized water under microwave radiation. The second approach relates to the transformation of Mg(OH)₂ to MgO nanoflakes and grass-like nanostructures by rapid microwave hybrid heating using a SiC-based composite susceptor. The as-synthesized samples have been characterized by X-ray diffraction (XRD) and Field Emission Scanning Electron Microscope (FESEM) The optical properties of the samples are investigated using UV–visible spectroscopy to study the reflective index and optical dielectric constant.