عنوان مقاله:

Characterization of Structural, Optical and Hydrophilicity properties of TiO۲ Nano-Powder Synthesized by Sol-Gel Method

محل انتشار:

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خلاصه مقاله:

In this paper, titanium dioxide nano-particles were synthesized by sol-gel method in acidic atmosphere. The microstructure, morphology, optical band gap, and hydrophilicity of the sample were studied. Optical band gap of titanium dioxide was probed via Diffuse Reflectance Spectra (DRS) and contact angle (CA) was measured to investigate surface activity. XRD analysis was used to study crystallinity of the samples. Scanning electron microscopy (SEM) and Transmission electron microscopy (TEM) was also performed. The results presented high crystallinity of particles with average particle size of ~۲۱nm. Very small nano-particles were obtained (as small as ۷nm). The obtained optical band gap of the sample was determined which was ۳.۳۵ eV with direct linear fitness in Tauc relation. Contact angle indicated super- hydrophilicity after ۴۰ minutes under UV-Radiation.

کلمات کلیدی:

Optical band gap, Nano-Size, Titanium dioxide, XRD, TEM