

Effect of acid concentration and time of sulphate process on synthesizing the titanium dioxide from synthetic rutile waste

Abstract

A fast and easy method for preparing the titanium dioxide (TiO_2), using a caustic hydrothermal decomposition conditions followed with sulphate process using sulfuric acid (H_2SO_4), is presented. Synthetic rutile waste as a starting raw material going through these two simple processes then the effects of acid concentration and time of sulphate process were studied. The chemical composition of the product will be characterized using Electron Dispersive (EDX) and the micrographs were analyzed using a Field Emission Scanning Electron Microscope (FESEM). This study shows that a titanium dioxide (TiO_2) was successfully synthesized after treated with medium acid concentration, 1M to 3M and short treatment time, 3h to 5h sulphate process.