Production of wollastonite from local resources

Abstract

This project is focused on the production of wollastonite (CaSiO3) from local resources. Wollastonite was produced by milling silica (SiO2) and limestone (CaCO3) in planetary mill for 1 and 5 hours. Samples have been sintered at different temperatures which are 900°C, 1100°C and 1300°C for 1 hour. The raw materials that have been used was collected from surround of state of Perlis and have high purity. This has been proven by X-Ray Fluorescence (XRF) analysis. By observing under Scanning Electron Microscope (SEM), the morphology of wollastonite shows that it has high porosity and disperses homogeneously. The X-Ray Diffraction (XRD) pattern shows that the phase of β wollastonite occurred almost at high temperature which is 1100°C. Besides, the intensity of peak also shows that the wollastonite has crystalline structure. The C-O and C-C bonding is proven by Fourier Transform Infra-Red (FTIR) analysis. The particle size for 1h milling is 26.16μm while for 5h is 16.8μm.

Keywords — Heat treatment, silica and limestone, wollastonite.