

Production of wollastonite from local resources

Abstract

This project is focused on the production of wollastonite (CaSiO_3) from local resources. Wollastonite was produced by milling silica (SiO_2) and limestone (CaCO_3) 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 $26.16\mu\text{m}$ while for 5h is $16.8\mu\text{m}$.

Keywords — Heat treatment, silica and limestone, wollastonite.