2nd international conference on computational and experimental science and engineering (ICCESEN-2015)

2015

Structural and microstructural characterization of Algerian diatomite

S.BENAYACHE, S.Alleg, S. Souilah, H.Meradi, F.AOUADJA

Abstract : Diatomite is a sedimentary rock composed of fossilized skeletons of diatoms which are microscopic unicellular alga. Due to its useful physical and chemical characteristics, it is used in a wide range of industrial applications. Raw diatomite samples were taken from SIG region of Algeria. Chemical composition, morphology, structure and specific surface area are determined by X-ray fluorescence, scanning electron microscopy, X-ray diffraction, Fourier Transform Infrared Spectroscopy and N2-adsorption-desorption analysis, respectively. The XRF results indicate that the raw diatomite is mainly composed of silica (>60%) and CaO (>14%). The XRD pattern reveals a mixture of amorphous silica and crystalline phases such as quartz and tridimite. The surface area, pore volume and pore size are 26.4 m2/g, 0.204cm3/g and 30.82 nm, respectively.

Keywords : diatomite, characterization, pore, FTIR