

Structural and microstructural characterization of Algerian diatomite

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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