

Hydrothermal transformation of metakaolinite under basic solution

ABSTRACT

An amorphous metakaolinite was treated hydrothermally with 1.25M KOH solution at 190 °C during different reaction times ranging from 0 to 48 h. The products obtained were characterised by X-ray diffraction in order to determine their mineralogical characteristics. Two distinct mechanisms can explain the change of the precursor material in KOH solutions: (1) precipitation and (2) dissolution. At the initial stage, only gibbsite and quartz can be identified from the major peaks of the diffractograms, while after 12 hours, zeolite F and kalsilite have been formed before the formation of leucite after 48 hours.