Comparison of IR Spectra of Five PorcelainCompositions Prepared Using Algerian RawMaterials

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Abstract : The interest in Infrared (IR) spectroscopy is anessential technique for the characterization of ceramic. Its mainadvantage when it comes to studying items is that it is nondestructive:the samples can be investigated without furtherpreparation. IR spectroscopy probes molecular and crystal latticevibrations and therefore is sensitive to the compositions, chemicalenvironment, bonding and crystalline/amorphous structure of asample material. Five Porcelain compositions were studied bynon-destructive infra Raman spectroscopy: kaolin was derivedfrom Debagh deposit (Guelma region), Quartz was derived fromEl Oued region and PF was derived from Ain Barbar deposit(Annaba region) and both commercial Alumina talc. Ramanintensity is a very powerful tool, which allows investigating andcharacterizing the modifications of the structure in covalentbonded compounds. Hence the observed porcelain spectralfeature at ~1050 cm-1is due to SiOfor the five compositions.From our study, as well as the literature reviewed it appears thatinvestigators uniformly confirm the benefits of IR spectroscopyconcerning identification of chemical functional groups of thedifferent chemical compositions.

Keywords : porcelain, IR, quartz, alumina, talc