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Comparison of IR Spectra of Five PorcelainCompositions Prepared Using Algerian RawMaterials

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Abstract : The interest in Infrared (IR) spectroscopy is an essential 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 further preparation. IR spectroscopy probes molecular and crystal latticevibrations and therefore is sensitive to the compositions, chemical environment, bonding and crystalline/amorphous structure of asample material. Five Porcelain compositions were studied by non-destructive infra Raman spectroscopy: kaolin was derived from 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 and characterizing the modifications of the structure in covalentbonded compounds. Hence the observed porcelain spectral feature 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 spectroscopy concerning identification of chemical functional groups of the different chemical compositions.

Keywords : porcelain, IR, quartz, alumina, talc