

Physical and Mechanical Properties of Porous Kaolin Based Ceramics at Different Sintering Temperatures

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Abstract: *In this work, kaolin based ceramics using styrofoam, sawdust, and powdery high density polyethylene as pore formers were experimentally investigated. Prior to batch formulations, the kaolinite used was wet beneficiated. This was followed by mixing starting materials with pore formers, producing green bodies which were then uni-axially compacted into standard sample dimensions and fired at various sintering temperatures of 850°C, 1000°C and 1150°C for 2 hours in a furnace. The physical and mechanical properties of the sintered samples were investigated and the generated data analysed. It was observed that the apparent porosity and water absorption of the samples decreased with increased sintering temperature, while the bulk density, apparent density and cold crushing strength of the samples increased with increased sintering temperature. It was concluded that the samples which were sintered at 850°C with 5% wt pore former of powdery high density polyethylene gave the optimum properties in terms of the porosity and mechanical strength of the samples.*

Keywords: *Sintering temperature, Kaolin based ceramics, Pore formers*