

Influence of Waste Glass Addition on DC Conductivity of Kaolin and Illitic Clay

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Kaolin and illitic clays are the main components used in the traditional ceramic industry. The temperature dependencies of the electrical DC conductivity in kaolin and illitic clay on the amount of added waste glass were measured in the temperature range of 20 – 1100 °C. Kaolin and illitic samples were mixed with soda-lime waste glass of 0, 5, 10, 15, and 20 mass % respectively. During heating, several processes in kaoline and illite clay take place. All processes were also studied by differential thermal analysis, thermogravimetry, and thermodilatometry. The results revealed that there was an increase of overall shrinkage, a decrease of mass loss, and an increase in DC conductivity with an increasing amount of waste glass.