

Study on Properties and Morphology of Kaolin Based Geopolymer Coating on Clay Substrates

Abstract

The application of geopolymer as a coating was not widely explored by other researchers and therefore the study of kaolin based geopolymer coating applied on different types of clay substrate (unsintered and sintered) was carried out. The geopolymer coating paste were initially prepared by mixed the kaolin with alkaline activator (NaOH and Na₂SiO₃) until homogeneous mixture was obtained. After that, the geopolymer paste then applied on the surface of clay substrates and left to cure at 80°C for 24 hours and sintered at 800°C respectively for 2 hours. Flexural, compression test and SEM for morphology analysis are studied. Based on the results obtained, it shows that kaolin based geopolymer coating can contribute in improving the substrate strength, while curing and sintering temperature applied to the geopolymer coating on different substrate can influence the interaction between substrate and geopolymer paste to diffuse according to SEM image proved.

Keywords; Clay Substrate, Coating, Geopolymer, Kaolin