

Effect of NaOH concentration on microstructure of boiler ash based geopolymer

Abstract

Boiler ash is one of the waste material from palm oil processing industry and it was widely available. The role of alkaline activator in geopolymer is important for its mechanical properties. NaOH and sodium silicate solution was used as alkaline activator. In order to investigate effect of NaOH concentration on microstructure of boiler ash based geopolymer 6 different NaOH concentration (6M, 8M, 10M, 12M, 14M, 16M) were used. The boiler ash based geopolymer samples were cured in oven at temperature 80 °C for 24 hr. The compressive strength of geopolymer samples at 7 days showed that 14M obtained the maximum strength (13.9 MPa). This result was supported with SEM analysis were the 14M geopolymer sample showed more dense geopolymer matrix compared to others.

Keywords;

Boiler Ash, Geopolymer, NaOH Concentration, Palm Oil