ABSTRACT

Cement clinker was made from burning of raw material, there are limestone, clay, silica sand and copper slag. Burning in the furnace at 1400°C with heat rate 10°C/minute. The characteristic of raw mix while sintering process in the clinkerization is affected by its chemical composition. Variation in chemical composition give its effect to the clinker. Five variation of raw material composition was done in this research. Limestone and clay changing in composition while silica sand and copper slag is made stabil at 4% of silica sand and 1% of copper slag. Raw mix 1 contents of 90% limestone and 5% clay resulting clinker with phase composition of C₃S 115.6 %, C₂S - 55.35 %, C₃A 5.26 % dan C₄AF 5.21 %. Raw mix 2 contents of 80% limestone and 15% clay resulting clinker with phase composition of C₃S 98.42%, C₂S 5.77 %, C₃A 8.26 % dan C₄AF 9.76 %. Raw mix 3 contents of 70% limestone and 25% clay resulting clinker with phase composition of C₃S 40.81 %, C₂S 109.5 %, C₃A 12.28 % dan C₄AF 13.26 %. There are several phase compositions that are not suit to the range of ASTM so that need to be added correction material. Raw mix 4 contents of 60% limestone and 35% clay and Raw mix 5 contents of 50% limestone and 45% clay. Both of raw mix 4 and 5 was resulting glassy phase. Oxide analysis was done by XRF and gravimetrical methode as comparison, which result is not quite different. XRD analysis resulting characteristic peaks of CaCO₃, SiO₂, Ca₃SiO₅, Ca₂SiO₄, and Ca₃Al₂O₆.