allied academies

International Conference on

Materials Science and Materials Chemistry

August 20-21, 2018 | Paris, France

Formulation of Calcium dialuminate ($CaO•2Al_2O_3$) refractory cement from local bauxite

A B Tchamba, J C Sofack, R Yongue and **U C Melo**
University of Yaounde, Cameroon

Three types of bauxites containing aluminium hydroxide of 58.1% gibbsite and 19.3% boehmite for BX3, 95.5% of gibbsite for BX55 and 84.5% of gibbsite for BX8 were used with lime at 95% of CaO through solid state sintering in one stage to prepare a refractory clinker at 1550°C. The powder obtained after grinding the clinker showed in the XRD curves the presence of $CaO•2Al_2O_3$ and $CaO•TiO_2$ phases in the cement samples. The density of cement powder varied between 2.95 and 3.17 g/cm3and the specific area of the powder obtained after grinding was between 0.72 and 0.85 m2/g. The properties of hydrated cement, W/C = 0.33, after stabilization of cement components for 48 h at 105°C were showed by XRD, DTA, DTG and SEM (C_3AH_6, AH_3, CA_2 and $CaO•TiO_2$). The Young's modulus of the cement made varied between 35.5 and 39.4 GPa, and these Young's moduli were compared to conventional CA14M cement.

e: attchamba@yahoo.fr